

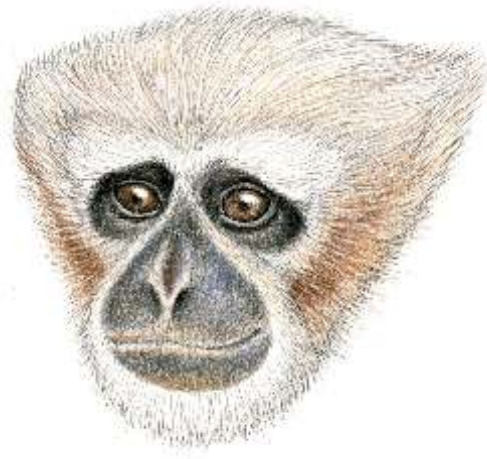
Help(ing) Hoolock Gibbons Hang on



Western Hoolock Gibbon
Hoolock hoolock



Eastern Hoolock Gibbon
Hoolock leuconedys



A Manual to make Every Teacher
a Conservationist and
Every Conservationist a Teacher



HELP(ING) HOOLOCK GIBBONS HANG ON

*A Manual to make Every Teacher a Conservationist
and Every Conservationist a Teacher*

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*This manual is an adaptation of the manual 'Teachers for Tigers',
developed by Wildlife Conservation Society, Bronx, New York*

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This manual is an adaptation of the manual 'Teachers for Tigers', developed by Wildlife Conservation Society, Bronx, New York.

Sponsors and collaborators



Preface

Welcome to a new way of teaching and learning about a most worthwhile topic, a Critically Endangered primate called the Hoolock Gibbon. If you did not know before, you will learn what are the special characters of Hoolock Gibbon and how you can always identify one. You will learn the meaning of Critically Endangered and why the world's most prestigious conservation organisation has put Hoolock Gibbon in this category. You will learn something about their behaviour and biology and how field biologists study them. You will learn what you can do to help Hoolock Gibbons Hang on. Better than all that, you will learn how to teach all this to others. You can teach dozens and hundreds, maybe thousands of kids, teens and adults the importance of Hoolock Gibbon and its forests. Even better, you will have fun doing it and your students will also. Lots of fun!

Hoolock Gibbon shares some of its localities with tigers. Tigers are fascinating and popular animals. They are large, powerful, beautiful ... they are “charismatic megavertebrates” ... exciting huge animals with backbones. We at Zoo Outreach Organisation were approached a few years ago by the famous Wildlife Conservation Society of Bronx, New York and invited to organize teaching workshops and use their great new manual called Teachers for Tigers. With this Manual we started teaching people about tigers and also about teaching. With this Manual we could teach people to love tigers, to love teaching and to love learning.

Time passed, after a few years, a few training workshops and a few hundred participants we happened to be in Bangladesh conducting another kind of workshop – a Population and Habitat Viability Assessment Workshop for the highly threatened primate Hoolock Gibbon. In this workshop we learned how very vulnerable this little animal is. We made commitments to help Hoolock Gibbon. Many of them involved teaching. Immediately after completing that workshop, we also ran Teachers for Tigers workshops in Bangladesh and invited some primate specialists from the P.H.V.A. workshop to attend. We made a special little booklet featuring teaching tools for primates which worked very well. Then it was a very short step to think about how helpful such a Manual as Teachers for Tigers, which tells almost everything about tigers, would be to help us teach people almost everything about the plight and potential of the Hoolock Gibbon in India and in Bangladesh.

During the P.H.V.A. workshop Jayantha Das asked us if we could organize a Teachers for Tigers workshop for Assamese forest rangers. This idea, combined with the crying need for teachers teaching about Hoolock Gibbon, pushed us to create a plan for six workshops instead of one, and for Hoolock Gibbon training as well as tigers. The theme of this workshop is Hoolock Gibbons and Tigers sharing habitats, and the framework is innovative, dynamic, and exciting teaching techniques.

During and after this workshop you are encouraged to think about these teaching tools, not just for tigers and Hoolock Gibbons, but for other species and issues. You are welcome to use these ideas freely to improve your teaching if you are an experienced teacher or to learn to teach if you are a novice.

It is our pleasure to bring you this Manual and programme, and in the process, to introduce you to the Wildlife Conservation Society, The U.S. Fish and Wildlife Service and our other collaborators to whom we are indebted for this Manual and for the current workshop about Hoolock Gibbons and tigers, sharing habitat.

Sally Walker, Founder/Director
Zoo Outreach Organisation

Introduction

Hoolock Gibbons are threatened with extinction! They are among the most unique primates in the world, and yet they do not get the respect they deserve from human beings. Hoolock Gibbons, being Apes, are closely related to human beings, but, in a land of uncontrolled human growth, they do not have enough space to survive. In an age of rapid human development, they do not have sufficient resources to cope with such changes. In localities where human beings still use the bones and flesh of wild animals for medicines, these animals face immense challenges to their survival. In an area where human society is facing some of its toughest internal battles, Hoolock Gibbons have no place to escape. At a time when human beings overwhelm and overpower all life forms, Hoolock Gibbons are affected much more than other life forms that can adapt better to the changing environment.

Hoolock Gibbons are naturally, internally wise – they respect nature. They are not destructive; they keep to themselves and do not interfere with nature's ways. They are not selfish; their bodies understand the balance of nature and regulate their births so that their populations do not increase more than what nature can accommodate. They keep to their own territories and do not overexploit weaker creatures or destroy habitats. We human beings, on the other hand, are exactly the opposite. How can we be as wise as Hoolock Gibbons or any wild animals when our advances have caused us to lose touch with the natural rhythms of the earth? Definitely, we cannot be wise by destroying nature. We, the super apes can learn a great deal from the lesser apes – Hoolock Gibbons, and animals, who are our best educators. We need to understand their way of life and live by some of those principles if we are ever to consider ourselves genuinely more advanced.

Hoolock Gibbons in the wild face a multitude of threats from human beings. Starting from the time when people began exploiting forests so grossly for their own purposes, Hoolock Gibbons, along with other animals (and some human beings as well) have continuously lost their homes. The problems began when colonials first exploited the forests for timber and introduced tea in the mid 1800s. This led to people moving in from neighbouring areas, to changes in native cultures from influence of outside religions, and expansion in human population. All these changes resulted in increased and accelerated loss of Hoolock Gibbon habitat. Habitat loss because of human development is a major contributor to the overall decline in Hoolock Gibbon numbers by more than 95% in just 50 years! Hunting for meat has also played a big role in this decline. Hoolock Gibbons now can be saved only by human intervention to curtail development in and nearby their last remaining localities.

This Manual is a first step in understanding what the Hoolock Gibbon's world is like. It introduces very simply the subjects of taxonomy, distribution, status, trends, threats, conservation, etc., as a first step in learning about this unique and magnificent primate. The Manual is developed for people to learn from and also use to teach others of any age group. The Manual helps teachers by incorporating very novel teaching methods that can be used in any level of education and with any topic.

Sanjay Molur, Deputy Director
Zoo Outreach Organisation

HELP(ING) HOOLOCK GIBBONS HANG ON

This educators tool kit is composed of five units:



Unit 1: Introduction

Evaluation: What do they know and what did they learn? How to find out?

Unit 2: South Asia's Only Lesser Ape

Lead your audience in Hoolock Gibbon dramas; compare Hoolock Gibbon ranges today to 50 years ago; learn about Hoolock Gibbon behaviour by observing the familiar human; and take a historic view on Hoolock Gibbons in the 20th century.



Unit 3: Hoolock Gibbon: Asian Primate Purely Asian

Compare Hoolock Gibbon belief and superstitions across cultures. Learn about how and why diverse perspectives and attitudes about Hoolock Gibbons exist.

Unit 4: Understanding and Acting

Use the real-life research of wildlife biologists of the Gibbon Wildlife Sanctuary, India and Lawachara National Park, Bangladesh, examine Hoolock Gibbon feeding ecology, home ranges, and census techniques. Learn about the methods used by conservation biologists. A role-playing activity engages participants in the issues faced by the park community, including conflicts between wildlife protection and people.





Unit 5: Species Problems and Solutions

What are the conservation problems faced by Hoolock Gibbons? Explore competition for resources, habitat destruction, human impact and the demand for Hoolock Gibbon meat. Group activities will compare the situation faced by different Hoolock Gibbon species, demonstrate factors contributing to the species status (Vulnerable, Endangered, Critically Endangered). Participants will work together to understand the chances of survival of Hoolock Gibbons. Each person will finish the programme knowing how to make a difference in the survival of wildlife and by making a pledge to help save Hoolock Gibbons.

How to use these materials:

The materials can be used as a comprehensive Hoolock Gibbon “course” or, depending on your group and the time available, activities from the programme can be mixed and matched. Whether you have half a day, a full week, or an entire semester, this programme is designed to help you teach your students about the Hoolock Gibbon.

In the end, we hope that your audience has a better understanding and appreciation of Hoolock Gibbons, and has decided to take steps to protect them.



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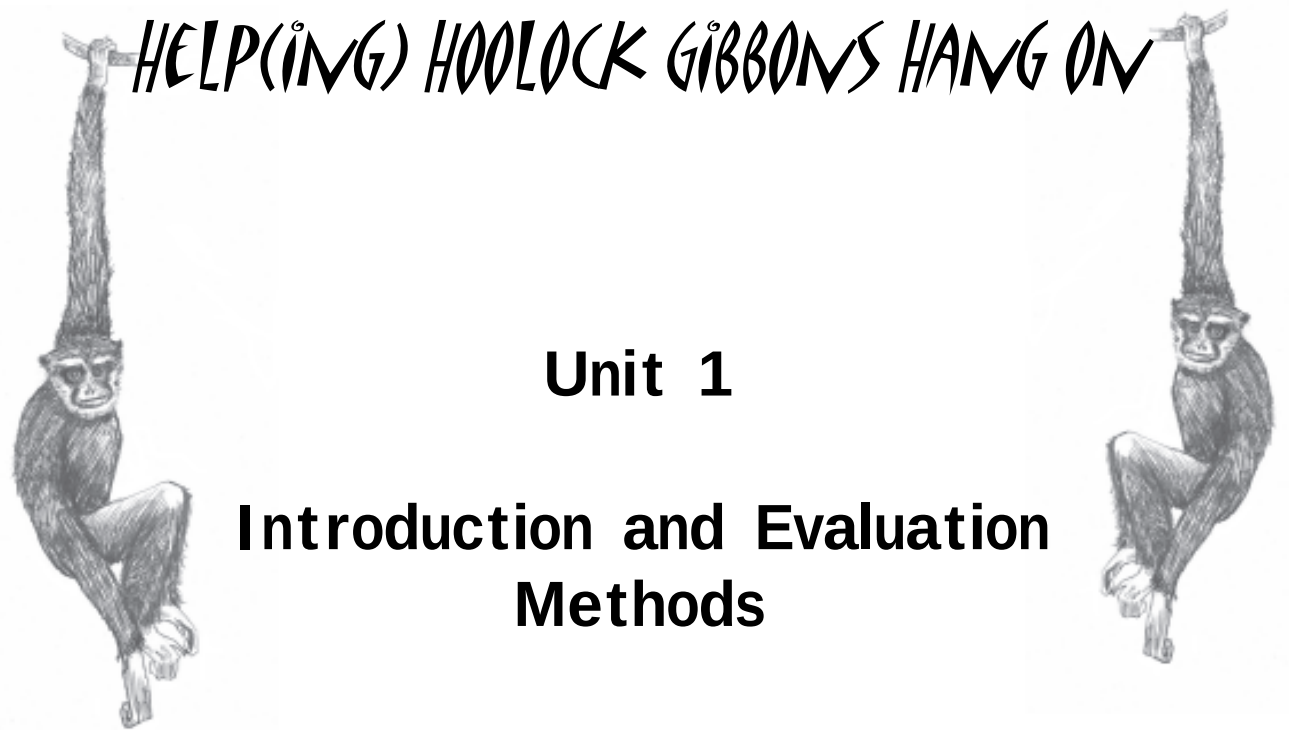
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Unit 1

Introduction and Evaluation Methods

*What do they know and what did they learn?
How to find out? Page 10*



WHAT DO THEY KNOW AND WHAT DID THEY LEARN?

Introduction to Educators and Conservationists:

It is important for you to be able to assess how this programme affects participant's knowledge of Hoolock Gibbon and the evolution of their attitudes and actions. To achieve this goal we have provided several assessment activities. Which one(s) you choose to use will depend on your audience and the amount of time you have to spend with them.



METHOD A: CONCEPT MAP

This method is appropriate for:

Literate or illiterate groups from children to adults

How long this form of assessment takes:

Twenty minutes before the use of any programme materials and 20 minutes after the use of all programme materials.

How it works:

Concept maps are a form of assessment designed to test knowledge before and after a unit of study or educational programme. Concept maps can be explained quickly and done by participants in a short time. They are, therefore, an effective form of assessment for use with audiences with whom you are working for a short time.

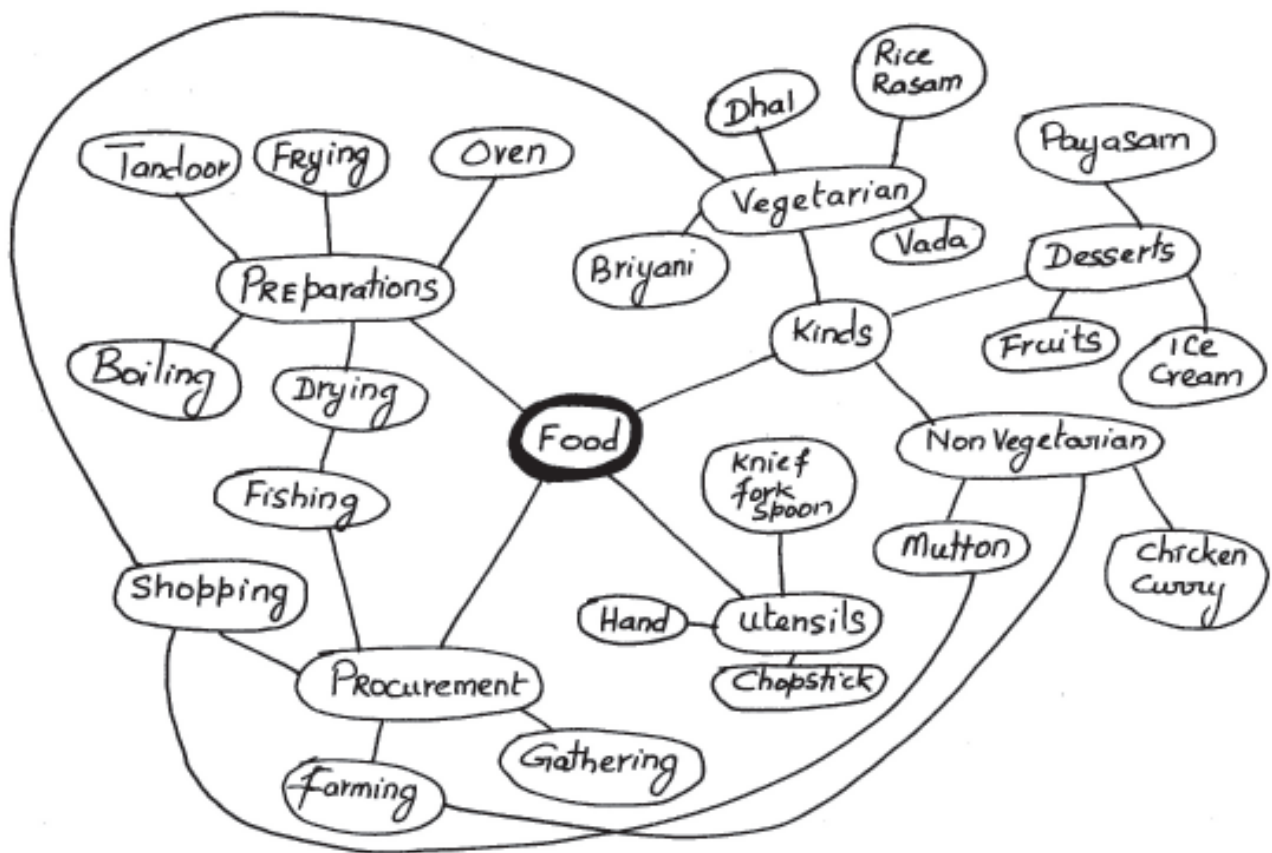
**If the audience is literate, people should make concept maps using written words.
If the audience is illiterate, they should use drawings.**

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The goal of a concept map is to illustrate the main concepts associated with a particular subject, and the relationships between those concepts. Before having the members of your audience do their maps for Hoolock Gibbons it is essential to pick a concept with which they are familiar, such as “food,” and do a sample group map in front of the whole group. Use questions to prompt the audience's knowledge for the sample map.

For example: What are some kinds of food? Meat dishes, vegetable dishes, sweets. What utensils do people use to eat food? Knife and fork, chopsticks, their hands. How do people procure their food? Farming, fishing, gathering, buying it at a store or market. How do people prepare their food? Cook it in an oven, cook it over a fire, dry it in the sun!

A Sample Concept map for subject ‘food’ is shown:

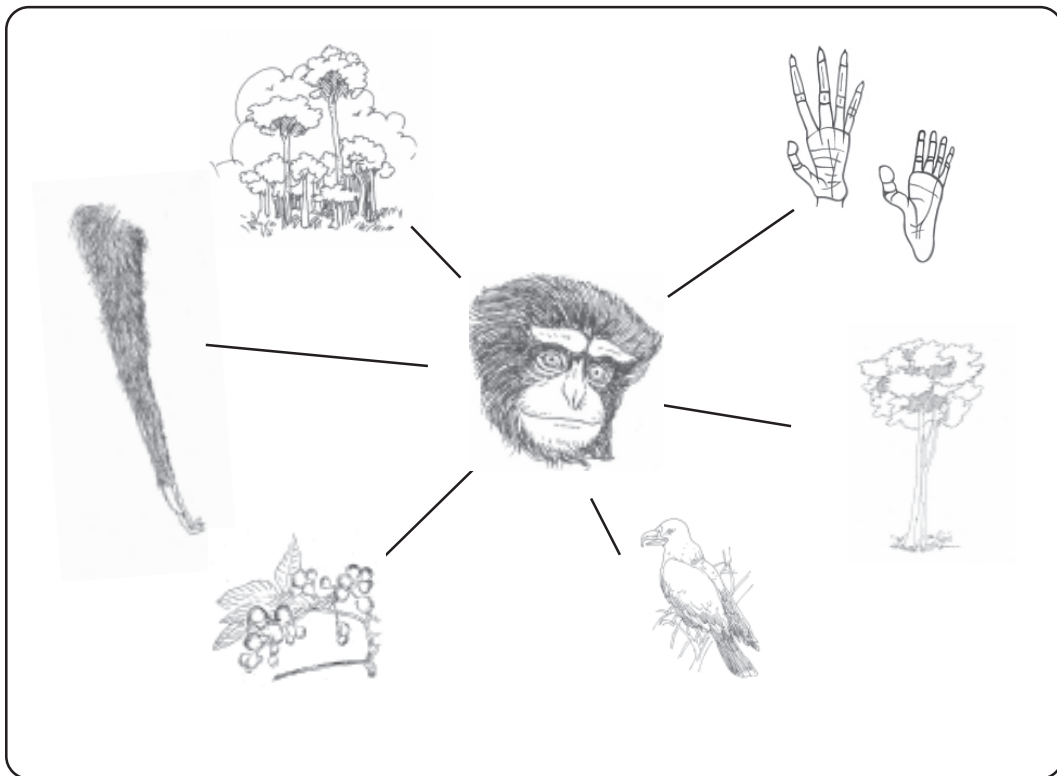


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After you have completed the group map for food, have members of the audience work individually or in pairs to complete a concept map for Hoolock Gibbons.

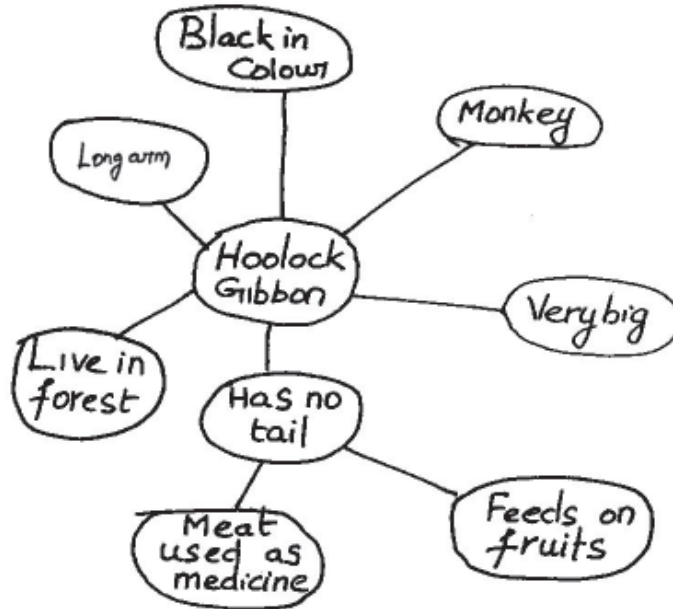
It is important that the pre-programme concept map be done before any of the programme activities and the post-programme map be done after all of the activities. Comparing the two maps evaluate the changes in knowledge and attitude before and after your inputs. Following pages have two concept maps for Hoolock Gibbons. The first map was made before the students had studied Hoolock Gibbons, the second one was made afterwards. The difference in the number of concepts presented and in their connections indicates a clear difference in knowledge and understanding about Hoolock Gibbons.

Sample pre-programme Concept Map: subject 'Hoolock Gibbon'
Illustration

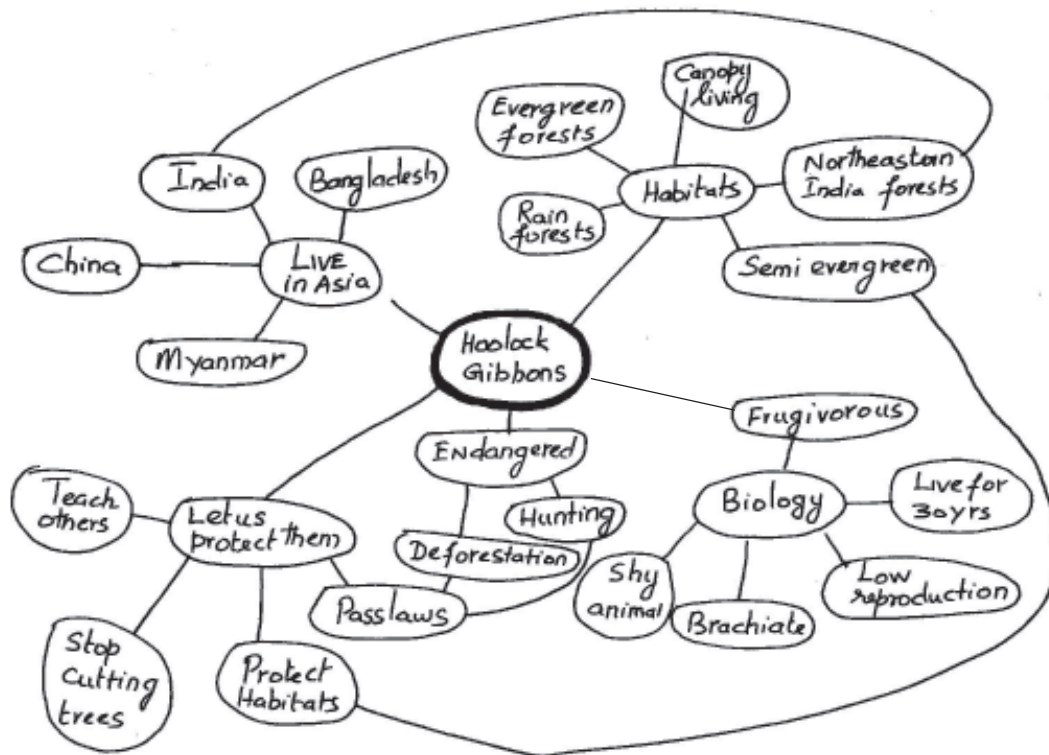


HELP(ING) HOOLOCK GIBBONS HANG ON

Sample pre-programme Concept Map: subject 'Hoolock Gibbon'



Sample post-programme Concept Map: subject 'Hoolock Gibbon'



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METHOD B: STORY WRITING

Appropriate for:

All ages, from children to adults. Literate audiences can write stories and illiterate audiences can create stories in one picture or in a series of pictures.

How long this form of assessment takes:

Fifteen to 30 minutes before and the same after the programme.

How it works:

Ask the audience to work individually or in pairs to create a story on Hoolock Gibbons. Encourage them to be as creative as possible, but do not give them any guidelines in terms of subject matter. Let the audience write or illustrate one story before the programme is used and another story after the programme is completed. If the audience is literate, then let the audience write a paragraph comparing their own two stories and assessing how their knowledge and attitudes have changed. If the audience is illiterate, collect the pre-programme stories and conduct your own evaluation. When evaluating the differences between the pre-programme stories and the post-programme stories, ask the following questions:

1. How is the Hoolock Gibbon in the story presented? On the whole, is the Hoolock Gibbon presented in the way that is positive or negative?
2. Does the role of the Hoolock Gibbon suggest any of the following emotions for the author?

Appreciation, awe, hatred, disrespect, fear, love, anger,

3. In your opinion, does the story encourage readers/viewers to like or to dislike Hoolock Gibbons?



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METHOD C: ATTITUDE ASSESSMENT

Appropriate for:

Illiterate groups from children to adults

How long this form of assessment takes:

Ten minutes both before and after the unit of study.

How it works:

Participants are presented with answer sheets with ten rows of three faces: One happy, one sad and one neutral. A sample row is shown below.



Instruct the audience to circle one face in response to each statement that you will read aloud. Each audience member should circle the happy face if the statement makes them feel good, the sad face if the statement makes them feel bad, and the neutral face if the statement produces no emotional response. The statement and response session is conducted twice, once before the programme on Hoolock Gibbon and once after the programme. Differences in responses between the two sessions are then quantified and compared.

Attitudinal Survey Statements

- 1) Close your eyes and imagine a Hoolock Gibbon. How does it make you feel?



- 2) In 1950, there may have been 1,70,000 wild Hoolock Gibbons in the world, today the number of wild Hoolock Gibbons has been reduced to fewer than 3000.



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3) There is a new law protecting Hoolock Gibbons.



4) Close your eyes and imagine a Hoolock Gibbon mother playing with its baby. How do they make you feel?



5) Since 1950 many locations/habitats of Hoolock Gibbons have been lost. It means they lost a larger part of their home range and are now confined to a few small pockets.



6) Conservation scientists are working hard to make sure that the remaining Hoolock Gibbons survive.



7) Conservation educators are working hard to make people aware about Hoolock Gibbons and what needs to be done for their survival.



8) Sometimes, people need to make sacrifices so that habitats (or homes) for Hoolock Gibbons are protected.



HELP(ING) HOOLOCK GIBBONS HANG ON

9) If many of us care enough, Hoolock Gibbons will survive for our great-grandchildren to see.



10) How does it make you feel to think that you can help to save Hoolock Gibbons.



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METHOD D: CONTENT SURVEY- PICTORIAL

Who this form of assessment is good for:

Literate and illiterate groups from children to adults.

How long this form of assessment takes:

Fifteen minutes before and after the unit of study.

How it works:

Give your audience the same multiple choice survey before and after you teach them about the Hoolock Gibbon. As an instructor, you read a series of statements or questions aloud. For each statement or question, each individual chooses one correct response from among four pictorial choices. It is important for the instructor to read the oral instructions to the audience exactly as written. The audience members must then make their own selections of each response they feel is most appropriate. If your group is literate, they will not need you to read the statements aloud. More than one choice could be correct for some questions. In that case as many correct circles must be filled.

Answer Key	
Answer Key Practice Survey	Answer Key Hoolock Gibbon Survey
A - Image 2	A - Image 4
B - Image 4	B - Image 3
C - Image 1	C - Image 1
D - Image 3	D - Image 4
	E - Image 2
	F - Image 2,4
	G - Image 3,4
	H - Image 1,2,4
	I - Image 2

HELP(ING) HOOLOCK GIBBONS HANG ON

Questions:

A) Fill in the circle under the picture of a tree



B) Fill in the circle under the picture of the heart



C) Fill in the circle under the picture of an animal that can fly



D) Fill in the circle under the picture that shows something you can see in the sky at night



HELP(ING) HOOLOCK GIBBONS HANG ON

Hoolock Gibbon Survey

Questions:

A) Fill in the circle under the picture of the Hoolock Gibbon

☐☐☐☐

B) Hoolock Gibbons live in the wild on only one continent. Fill in the circle under the picture of that continent.

☐☐☐☐

C) The amount of area in which Hoolock Gibbons live has changed a lot in the last 50 years. Fill in the circle under the picture showing the places where Hoolock Gibbons lived 50 years ago.

☐☐☐☐

D) Fill in the circle under the picture of the habitats where you would expect to see Hoolock Gibbons living.

☐☐☐☐

HELP(ING) HOOLOCK GIBBONS HANG ON

E) Fill in the circle under the picture of the closely related animal to Hoolock Gibbon.


☐

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☐

F) Fill in the circle under the picture showing the food a Hoolock Gibbon would be most likely to eat. You may fill in more than one


☐

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G) Fill in the circle under the picture showing who is most likely to kill a Hoolock Gibbon.


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H) Fill in the circles under the picture that are causing Hoolock Gibbon to disappear. You may fill in from one circle to all four.


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I) Fill in the circle under the picture of the person who is not contributing to Hoolock Gibbon conservation.


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HELP(ING) HOOLOCK GIBBONS HANG ON



METHOD E: CONTENT SURVEY - WRITTEN



Appropriate for: Literate adults.

How long this form of assessment takes:

Fifteen minutes before and after the unit of study.

How it works:

Literate adults are administered the same multiple choice survey before and after the unit on Hoolock Gibbons. Participating individuals should be instructed to fill in the circle corresponding to the best response for each question or statement.

The instructor tallies the number of correct responses and compares the pre-unit and post-unit scores to assess changes in content knowledge.

Answer Key

1. *Hoolock hoolock*
2. Asia
3. 2000 – 4000
4. None
5. Vary from place to place
6. None of the above
7. Northeastern states
8. Northeastern and Southeastern Bangladesh
9. Transects
10. All of the above
11. All of the above

HELP(ING) HOOLOCK GIBBONS HANG ON

Content Survey Questions



1. What is the correct scientific name for the Western Hoolock Gibbon or White-browed gibbon?

- ☐ *Macaca mullata*
- ☐ *Macaca silenus*
- ☐ *Hoolock hoolock*
- ☐ *Bunopithecus hoolock*

2. On which continent do Hoolock Gibbons live in the wild?

- ☐ Africa
- ☐ Asia
- ☐ Europe
- ☐ North America

3. How many wild Hoolock Gibbons are alive today?

- ☐ About 1,00,000
- ☐ About 10,000
- ☐ Between 2,000 and 4,000
- ☐ Between 20,000 and 30,000

4. Of the 2 Hoolock Gibbon species found in Asia how many are now extinct?

- ☐ None
- ☐ All are extinct
- ☐ One extinct

5. The opinions people have about Hoolock Gibbon in different parts of Asia are:

- ☐ Essentially the same no matter where people live
- ☐ Vary from place to place
- ☐ Of no importance to Hoolock Gibbon conservation

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6. All over Asia/world, Hoolock Gibbon have been important symbols in:

- ☐ Art
- ☐ Literature
- ☐ Advertising
- ☐ None of the above

7. Hoolock Gibbons in India are found in

- ☐ Western Ghats
- ☐ Eastern Ghats
- ☐ Northeastern states
- ☐ The Himalayas

8. Hoolock Gibbons in Bangladesh are found in

- ☐ Northeastern and Southeastern Bangladesh
- ☐ Central Bangladesh
- ☐ Everywhere

9. Which one of the following is a common method for Hoolock Gibbon study?

- ☐ Camera Trap
- ☐ Transects
- ☐ Radio-tracking
- ☐ All of above

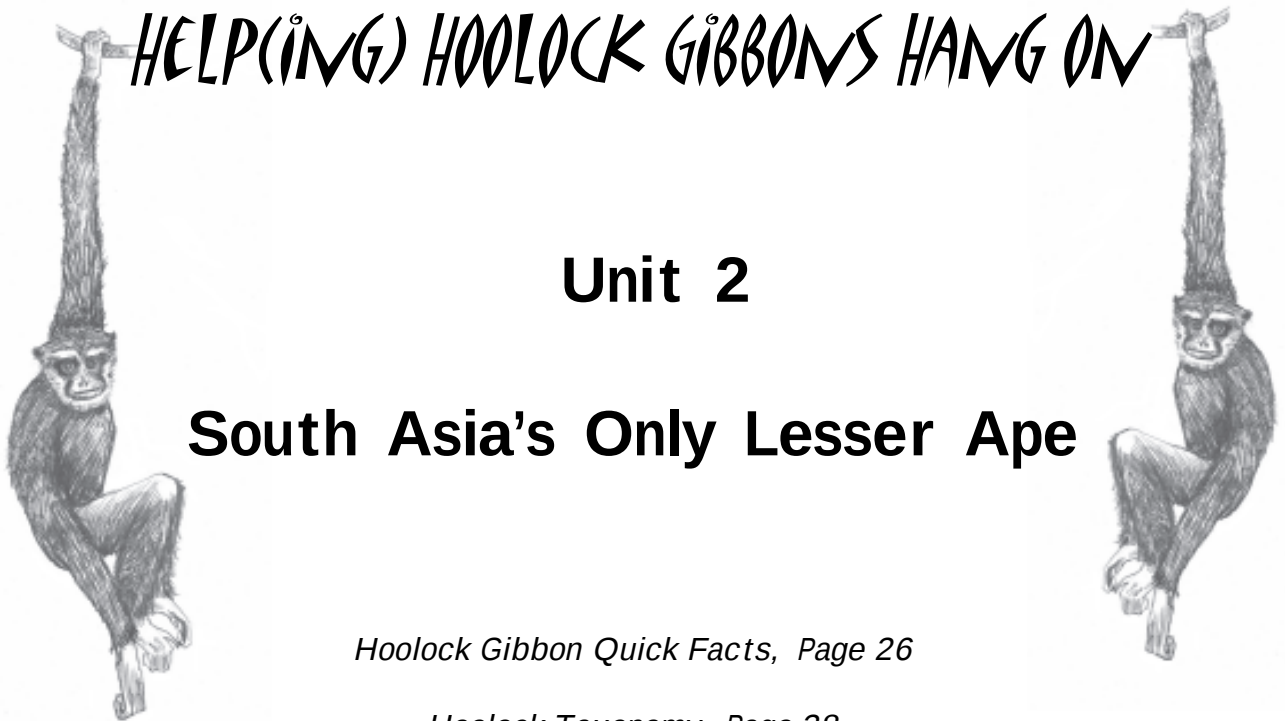
9. Which of the following is a major reason why Hoolock Gibbons have become rare in most of their range?

- ☐ Habitat loss
- ☐ Hunting
- ☐ Tree felling
- ☐ All of the above

11. Which of the following is important to Hoolock Gibbon conservation?

- ☐ Public education/awareness
- ☐ Scientific research
- ☐ Laws protecting Hoolock Gibbons
- ☐ All of the above





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Unit 2

South Asia's Only Lesser Ape

Hoolock Gibbon Quick Facts, Page 26

Hoolock Taxonomy, Page 28

Learning With Little Dramas ... How Hoolock Gibbons Live, Page 30

Where Hoolock Gibbons Lived, Live and Will Live, Page 36

Hoolock Gibbon Behaviour, Page 50

Hoolock Gibbon History, Page 62

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QUICK FACTS

Hoolock Gibbons

Scientific Names: *Hoolock hoolock*
Hoolock leuconedys

The name Gibbon could be derived from the Latin word '*gibbus*', meaning hump or hunchback, which is a typical sitting posture of a gibbon, or from an old Chaldic word meaning ape.

Regional Names:

Assamese: *Holou Bandar*

Bengali: *Ulluk*

Bilaspuri: *Bonmanush*

Bodo: *Hulu makhra*

Garó: *Heru, Huru*

Hindi: *Uluk*

Karbi: *Kinghoiduk, Jambli*

Khasi: *Hulu, Haulaing*

Manipuri: *Yommu*

Mizo: *Hahuk*

Nepali: *Bon Manchhe*

Rai: *Sokpha*

Rankhol: *Saha*

Riang: *Hulao*

Rongmi: *Paang*

Rukni: *Hoolau*

English: Hoolock Gibbon,
Western Hoolock Gibbon, White-
browed Gibbon, Eastern Hoolock
Gibbon

HELP(ING) HOOLOCK GIBBONS HANG ON



- Habitat:** *Tropical wet evergreen forest, Tropical semi-evergreen forest, Tropical moist deciduous forest, Subtropical broad-leaved hill forest, Mixed-evergreen forest*
- Colouration:** *The coat colour of adult male is black with distinct white eye brows. The coat colour of adult female is pale to dark tan (brown). The coat colour of new born is a milky white. During the second half of the first year, the colour changes to black within a few months; only the brow-band remains white.*
- Life span:** *Hoolock Gibbons live for about 30 years.*
- Pregnancy:** *About 7 months (183-225 days)*
- Litter size:** *One. Birth typically occurs from November to February.*
- Maturity:** *6-10 years.*
- Weight:** *Adult average weight is 7 kg. (A female weighs 6.0 - 6.6 kg and a male weighs 6.1 - 7.9 kg)*
- Lifestyle:** *Terrestrial, arboreal (canopy dependent), brachiator, diurnal, monogamous, territorial species*
- Group size:** *An adult male and a female, and from 1-4 offspring.*
- Food:** *Principally frugivores (fruit eaters) and leaves are their main supplement. They also feed on flowers, sometimes birds' eggs, young birds and insects.*
- Predators:** *Adult Hoolock Gibbons typically live in the crown region of the forest where eagles and vultures may act as natural predators. In the lower storey of the forests, leopards, tigers, pythons and human may be potential predators of Hoolock Gibbons.*

HELP(ING) HOOLOCK GIBBONS HANG ON

Characteristics of the Western Hoolock Gibbon - *Hoolock hoolock*

This species is found on the western side of the river Chindwin. Adult males, *Hoolock hoolock* on the west side of the river Chindwin are just black; white brow streaks close together, connected by white hairs. Adult females of this species with a pale dark tan coat colour have a distinct central partition in the head hair. The hair of female's hand and feet are generally the same colour as the body hair but there is a black fringe on the fingers, toes, and on the edge of hands.

Characteristics of the Eastern Hoolock Gibbon - *Hoolock leuconedys*

The adult males of this eastern population to the river Chindwin, *Hoolock leuconedys* are black; white brow streaks well separated with no white hairs between; chin and suborbital zone often with white hairs. Adult females have lighter hand and feet. The females' digits may have a trace of black on them. The females' crown hair grows slightly upwards and towards the back of the neck and is not parted down the middle.



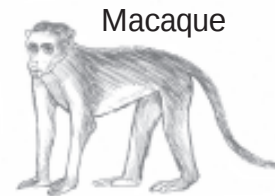
Hoolock Gibbon



Loris



Langur



Macaque

ALL ABOUT HOOLOCK TAXONOMY

Primates are a group of mammals in the animal kingdom. Other than humans (ape), all members of this group are considered as non-human primates. There are about 230 species and subspecies of primates in the world of which 46 live in South Asia. Apes are tailless monkeys and are the most successful of the primates and the closest relatives of humans. There are lesser apes (e.g. gibbons and siamangs) having smaller body sizes and greater apes (e.g. chimpanzees, gorillas and orangutans) with larger and more derived morphology. Gibbons, siamangs and orangutan are the only apes native to the Asian forests. The orangutan is found only in Southeast Asia, whereas gibbons inhabit the tropical and semi-deciduous forests of South, East, and Southeast Asia. Gibbons are distributed from Northeastern India and Bangladesh eastward to Yunnan China, Vietnam, Cambodia, Laos, Thailand, and south to the Malaysian Peninsula, Sumatra, Borneo, and Java. Hoolock Gibbon is one of the 25 gibbon species/subspecies (Mootnick, 2006) in

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the world. Hoolock Gibbons belong to family Hylobatidae that include 2 species of genus *Hoolock* (*Hoolock hoolock* - Western Hoolock Gibbon and *Hoolock leuconedys* - Eastern Hoolock Gibbon), 14 species and sub species of genus *Hylobates*, 7 species and subspecies of genus *Nomascus* and 2 sub species of genus *Siamang*.

Hoolock Gibbons are found in Northeastern India, Southeastern and Northeastern Bangladesh, Southern China and Myanmar. Hoolock Gibbon is a globally threatened species. The present population is estimated to be about 3000. In Bangladesh alone the population in mid 1980s was estimated to be 3000 but now there are only 202 left in the wild. Hoolock Gibbon aids with seed dispersal in the regeneration of new trees in the forest. Loss of habitat, capture for pet trade, food and medicinal purposes are the major threats for this species. If this situation continues, further decline is likely to result in the extinction of the species, which would be a cultural as well as an ecological loss.

How taxonomists name a species

Taxonomists put closely related living things into groups to classify them. Classification is mainly based on the evolutionary relationship between species. Taxonomy is not so easy because the similarities and differences between closely related species are difficult to detect. Taxonomy helps in understanding life forms. Sometimes genetic analysis is used to classify a group of closely related species.

Hoolock taxonomy: Harlan in the year 1834 first described the species *Hoolock*, naming it as *Simia hoolock*. Another taxonomist named Blanford in the year 1888-91 named *Simia hoolock* as *Hylobates hoolock*. In 1980s based on fossil records *Hylobates* were grouped with the genus *Bunopithecus*. Recently Mootnick and Groves in the year 2005 recognised it as *Hoolock*. The two recognized subspecies of Hoolock Gibbons are ranked as separate species: *Hoolock hoolock* West of River Chindwin and *Hoolock leuconedys* east of River Chindwin (Mootnick, 2006).



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LEARNING WITH LITTLE DRAMAS ... HOW HOOLOCK GIBBONS LIVE

Mini-Dramas

These dramas are designed to introduce aspects of Hoolock Gibbon biology and conservation in a way that is fun and memorable, and that allows participants to know about the Hoolock Gibbons and the situations they face in the wild. The mini-dramas can be fun for people from ages 5 through adult, as long as the presenter is able to motivate participants to become involved. If you would feel that the adults you are working with will not enjoy participating in these dramas, prepare a group of children to perform them for the adult audience. Parents may also be encouraged to participate if their children are involved.

The dramas are designed so that no props or materials are necessary. However, costumes and props will make the dramas more enjoyable and meaningful for the performers and their audience. Sample black and white masks are provided at the end of this book for some of the roles. These masks can be reproduced and coloured so that many of the performers can wear them. Performers playing other roles can make their own masks.



Three Hoolock Gibbon drama scripts are included. Each drama should be performed by a minimum of six persons, so if you have fewer than 24 you may wish to use all three scripts. Break the group up into three smaller groups of equal size. Ask one person in each group to volunteer to be the director.

Explain that each group will rehearse its drama and must keep the subject a secret from the other groups and the audience. In each drama, all of the roles are in bold type the first time they are mentioned. For example, in the Habitat loss drama participants will play the following parts: sun, birds, trees, Hoolock Gibbons, fruits, human/poachers and crickets. Depending on the number of people in the group, a performer may need to play more than one role. Make sure the participants understand that the dramas will be

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performed without speaking; only animal sounds are allowed. After the groups have rehearsed sufficiently, have each group perform for the audience. When each drama is finished, the audience must try to explain what event is being dramatized, and what roles are being played.

After all the dramas have been performed, hold a discussion about the issues that have been presented. Ask participants and audience members to make a list of questions stimulated by the dramas. Ask them to propose other hoolock issues that could be the subject of the dramas. If you will be working with participants over a sustained period of time, you may wish to ask participants to work together to write their own dramas, or to adapt these non-speaking dramas into a full length play with spoken lines.

Energizer

Here are two activities that you can try before Hoolock Gibbon drama. This energizer can also be tried at any time to make the audience involved.



Energizer 1: *Whooooop...whoop....whooooop...whoop*

Divide the audience into two groups. Give an instruction to the audience to repeat the Hoolock Gibbon sound whenever the conductor points towards the group. Now the conductor to stands in front of the groups and say “Whoooooop” and point to one side of the group, and that side repeats. Then the conductor turn to the other side and say “Whoooooop” and they repeat. Whooooop...whoop....whooooop...whoop... It gets faster and faster and shorter and shorter (much like the Hoolock Gibbon sound!).

Energizer 2: *Brachiation warm up*

Ask your audience to stand up and move their hands as Hoolock Gibbons brachiate. You can make them feel the speed of the Hoolock Gibbon's brachiation.



HELP(ING) HOOLOCK GIBBONS HANG ON

1. Habitat Loss

(Hoolock Gibbons lose their homes due to felling of trees, and shifting to *Jhum* cultivation)

1. The **sun**  rises and begins to move across the sky. The musical chirp of **birds** floats on the breeze. 

2. A huge roost **tree** of Hoolock Gibbon stands out  in the semi-evergreen forest.

3. **Hoolock Gibbons**  enter – brachiating in search of **fruits** to eat.

A bird chirps and the wind blows. 

4. In the canopy some Hoolock Gibbons settle down (group size 2-5); some are grooming one another; some are sleeping; a few juvenile monkeys are playing.

5. A few **humans**  walk on the forest floor. The birds screech in fright and fly off, the **crickets**  go silent and the Hoolock Gibbons are alert.

6. **Poachers** select a huge tree, the tree where Hoolock Gibbons usually roost and start cutting. The sound of axe hitting the tree travels through the forest. Hoolock Gibbons are frightened and move to another tree and watch. The tree crashes to the ground.

7. Many trees are felled. 

8. Logs are picked up. There is a huge gap in the forest.

9. All Hoolock Gibbons sit on the tree stumps and look up the sky. The rain drops are falling.

10. Hoolock Gibbons are driven off and now people cultivate *Jhum* in the open forest. 

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2. Poaching

(Poaching for food, Oriental medicine and for pet market are the major reasons for the decline of the species in Hoolock Gibbon range areas)

1. It is a sunny day in the forest.

2. **Hoolock Gibbons** sit on the trees, eating fruits and leaves.
A large adult male gives a few short loud calls.



3. **Deer**  on the forest floor are looking for food a short distance away.

4. **Two men** emerge from thick bush carrying shot guns;
now quiet. They walk slowly to a **big tree**.



their voices are

5. The Hoolock Gibbons sit very still.

6. The male gets frightened and jumps to the next tree and others
follows. The **birds** chirp furiously and fly away.



7. The **poacher** aims his gun at the Hoolock Gibbons and shoots. A wounded Hoolock Gibbon tries to run away but falls dead.

8. The men inspect the dead Hoolock Gibbon. Other animals run



9. One man looks at the Hoolock Gibbon and makes sure it is dead.
One of the poachers covers it with gunny bag and carries it on his back.



10. They are pleased. The poacher revel in how much money the body of this Hoolock Gibbon will fetch at the market.

11. One of the hunters sends an SMS  to their base camp to say that they have slain a Hoolock. He describes how simple it was to commit this illegal act.

12. They wait until dusk. The hunters disappear into the night leaving blood stains on the forest floor. The **moon**  sets and another day dawns. One less Hoolock Gibbon is alive.

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3. Communication and Locomotion

1. The rising **sun**  is covered by clouds. It is a cold winter morning.

2. A group of **Hoolock Gibbons** are basking in the morning sun. They are all in a high leafless tree situated at the centre of their territory.



3. The group produces a loud, synchronous song in the early morning.

4. Some Hoolock Gibbons are using their favourite arboreal pathways across the canopy. They swing below the branches suspended by their long arms.

5. Some Hoolock Gibbons while moving over the branches or ground, walk on two legs using their arms for balance.



6. A few Hoolock Gibbons feed on some **fruits**.



7. After some time the Hoolock Gibbons involve in social grooming. They reinforce bonds between group members.

8. One young Hoolock notices a **python**  on a branch of the tree. It gives an anxiety call.

9. All the Hoolock Gibbons on the tree get alert.

10. They all brachiate and run away to a nearby tree.

11. The group then produces a loud song.



Whooooop...whoop...Whooooop...whoop

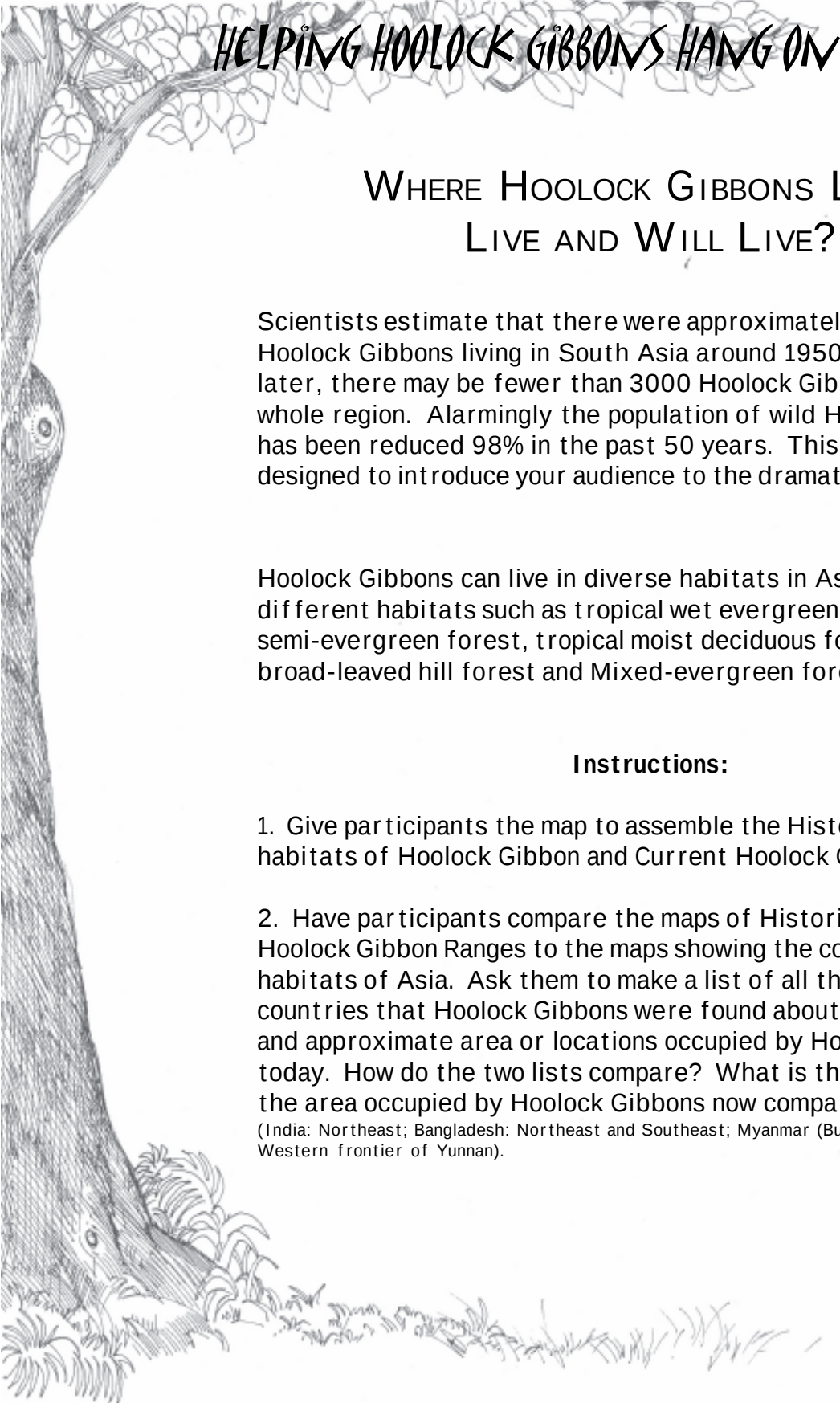
HELP(ING) HOOLOCK GIBBONS HANG ON

Create your own Drama: Instructions

Using the guidelines below, work with your group to write and perform a short environmental drama.

Steps:

1. Choose an environmental topic based on a current conflict or issue that is important to your group. Try to pick a very specific issue, as you will have limited presentation time. What is your topic? (Facilitator may want to hold a brainstorming session first, and then write the chosen topics on a board).
2. List the people, plants, and animals to be involved in this issue. Who are characters in your drama? (Plants & animals can have speaking roles, too.)
3. Decide where your drama will take place. What is the setting?
4. What is the main message of your drama?
5. Pick what events you want to act out – your story line – keeping it simple to be able to present within a five to ten minute time frame. What are the main events in your drama?
6. You do not need to write a script; rather think of the kinds of conversations your characters would have. What are the main topics of dialogue?
7. Assign roles and rehearse. As you practice, keep in mind the message you are trying to communicate.
8. Make props and costumes – be creative! Using scrap materials and natural materials is a great idea. Make sure you have already practiced so that you don't take all the rehearsal time to make your props and costumes.
9. Present your drama! Define the stage area and audience area. Make sure to be an attentive audience!
10. Discuss the dramas: messages, technique of drama as an educational tool, etc. as a group. Will you use dramas with your classes or audiences?



HELPING HOOLOCK GIBBONS HANG ON

WHERE HOOLOCK GIBBONS LIVED, LIVE AND WILL LIVE?

Scientists estimate that there were approximately 1,70,000 wild Hoolock Gibbons living in South Asia around 1950. Fifty years later, there may be fewer than 3000 Hoolock Gibbons left in the whole region. Alarming! the population of wild Hoolock Gibbon has been reduced 98% in the past 50 years. This activity is designed to introduce your audience to the dramatic decrease.

Hoolock Gibbons can live in diverse habitats in Asia. They live in different habitats such as tropical wet evergreen forest, tropical semi-evergreen forest, tropical moist deciduous forest, subtropical broad-leaved hill forest and Mixed-evergreen forest

Instructions:

1. Give participants the map to assemble the Historical range and habitats of Hoolock Gibbon and Current Hoolock Gibbon ranges.
2. Have participants compare the maps of Historic and Current Hoolock Gibbon Ranges to the maps showing the countries and habitats of Asia. Ask them to make a list of all the different countries that Hoolock Gibbons were found about 50 years ago and approximate area or locations occupied by Hoolock Gibbons today. How do the two lists compare? What is the difference in the area occupied by Hoolock Gibbons now compared to 50 years?

(India: Northeast; Bangladesh: Northeast and Southeast; Myanmar (Burma); and China - Western frontier of Yunnan).

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3. Ask participants how many kinds (or species) of Hoolock Gibbons are found in South Asia. Is there any area (location) that you don't see any of this species on the current map? What do you think happened to those area (locations)?
4. Can you think of any problems that would result from Hoolock Gibbons being confined to small locations of natural habitat?
5. In what habitat types is each Hoolock Gibbon found today?
(The most common habitats of Hoolock Gibbons are: tropical evergreen forests, the wetter tropical semi-evergreen forests, sub-tropical evergreen broadleaf forests, sub-tropical evergreen broadleaf hill or mountain forests and mixed evergreen forests.)
6. Ask participants to write down the names of the two Hoolock Gibbon species. Ask participants to fill the population sizes of each of the Hoolock Gibbon species. For correct numbers refer to the information below.

Hoolock hoolock

Western Hoolock Gibbon ca 3000



Hoolock leuconedys

Eastern Hoolock Gibbon ca 3000



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7. Add together the “Number of Hoolock Gibbons left” for the two species to figure out roughly how many total Hoolock Gibbons are left in the wild. Remember, though, that these numbers are based on estimates and / or from surveys in a few areas. A lot of scientific work still needs to be done to figure out how many Hoolock Gibbons are left, where they live, how we can save them.

8. Ask participants to figure out the following maths problem: If there were 17,000 wild Hoolock Gibbons 50 years ago, how many have been lost since then? If your audience knows how to calculate percents, have them figure out what percent of South Asia's wild Hoolock Gibbon population have disappeared over the last 50 years.

9. Lead a concluding discussion. Explain that Western Hoolock Gibbon lived in a larger area spread in all four countries some 50 years ago and now they are found only in small pockets occupying a total area of 740km² (Bangladesh 135km² ; India 605km²). This may lead to extinction of the species. Extinct means no longer in existence. Give participants a chance to share their feelings about what has happened to the Hoolock Gibbon population.

10. Ask your audience to think about the potential impact of isolating small populations of Hoolock Gibbons. Although Hoolock Gibbons once inhabited large expanses of land, today habitat destruction and hunting limit wild Hoolock Gibbons to fragmented and isolated populations, in which inbreeding and disease can have devastating effects.

11. Tell your audience that in captivity today, India has 17 Hoolock Gibbons in 9 zoos while Bangladesh has 2 zoos with 5 Hoolock Gibbons. Captive bred animals in some extreme situations will help in reestablishing the population by Re-introduction. But reintroduction has to be practiced in a very systematic scientific way.

Extension

- One of the key problems Hoolock Gibbons and other animals face is habitat fragmentation. Have your audience consider the possibility of translocating some of the small populations to a suitable natural habitat. Make them understand this has to be done with the guidance provided by the IUCN Re-introduction Specialist Group and it needs expertise otherwise we may lose those individuals.
- Have your audience consider the possibility of creating protected corridors linking different Hoolock Gibbon populations. Have them research what lies in between. Why might protecting a habitat corridor help save a species?
- You may wish to ask each of your audience members to compose a short poem to explain how they feel about the loss of Hoolock Gibbons and its habitats over the last 50 years.

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The cinquain poem format can be used as an appropriate model.



One word subject



Two adjectives describing your subject



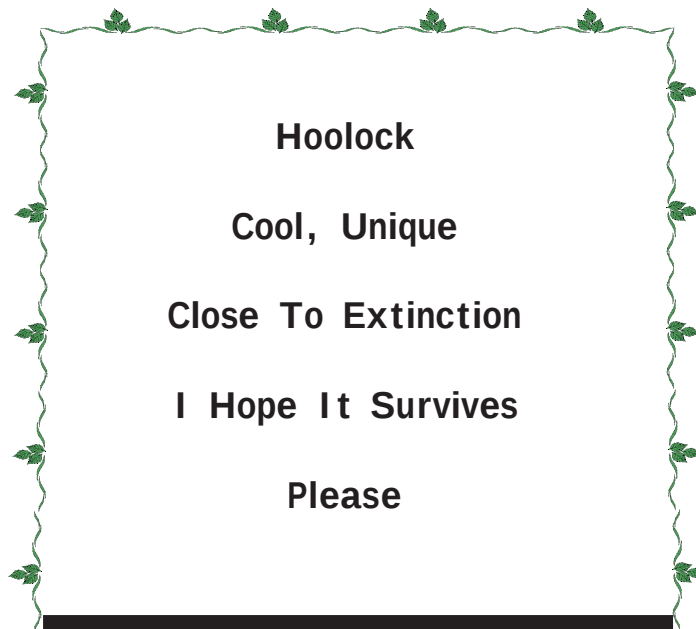
Three words telling something about your subject



Four words describing how you feel about your subject



Another word for your subject or your feelings

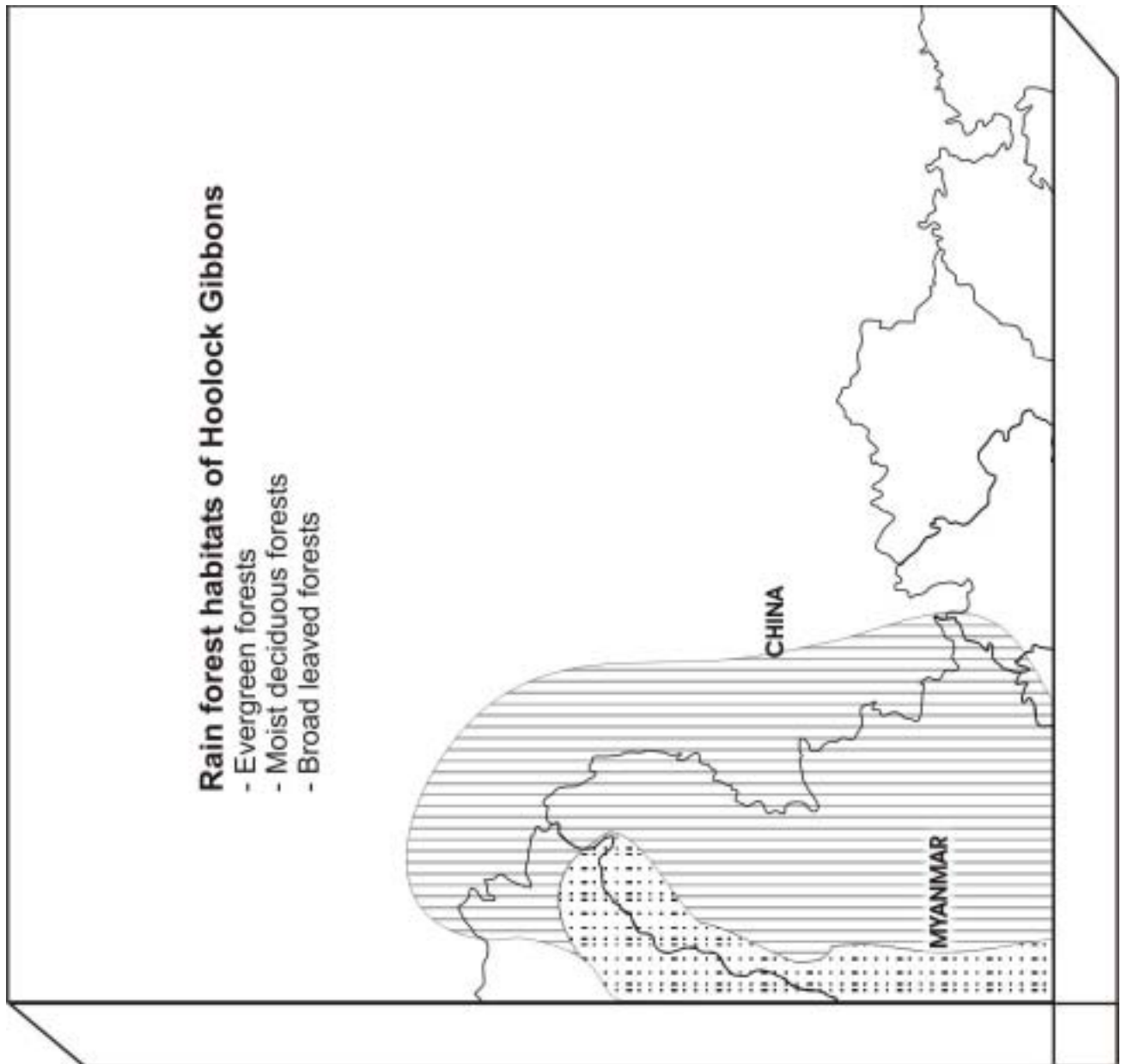


Historical Ranges and Habitats of Hoolock Gibbon

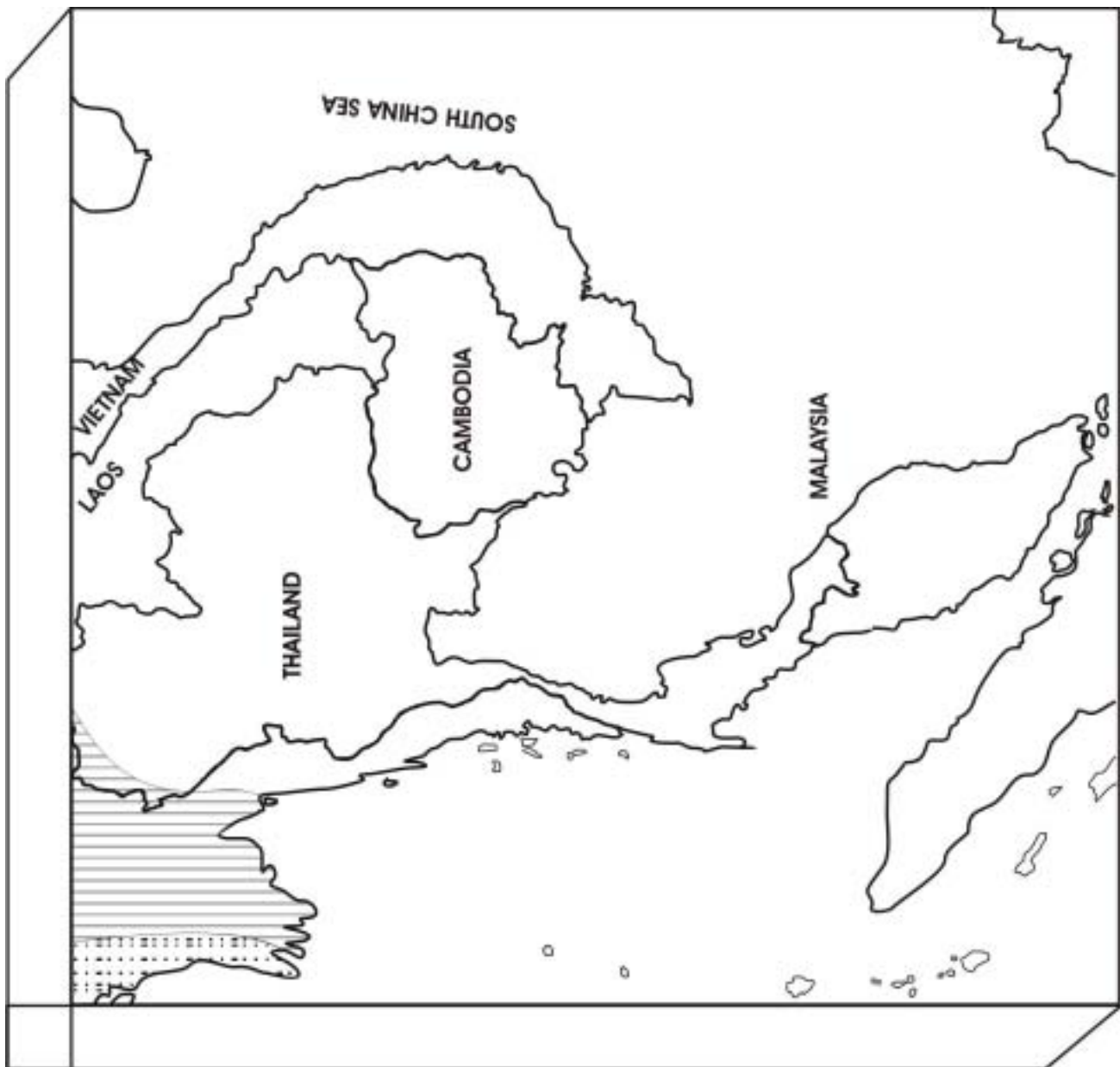
Maps



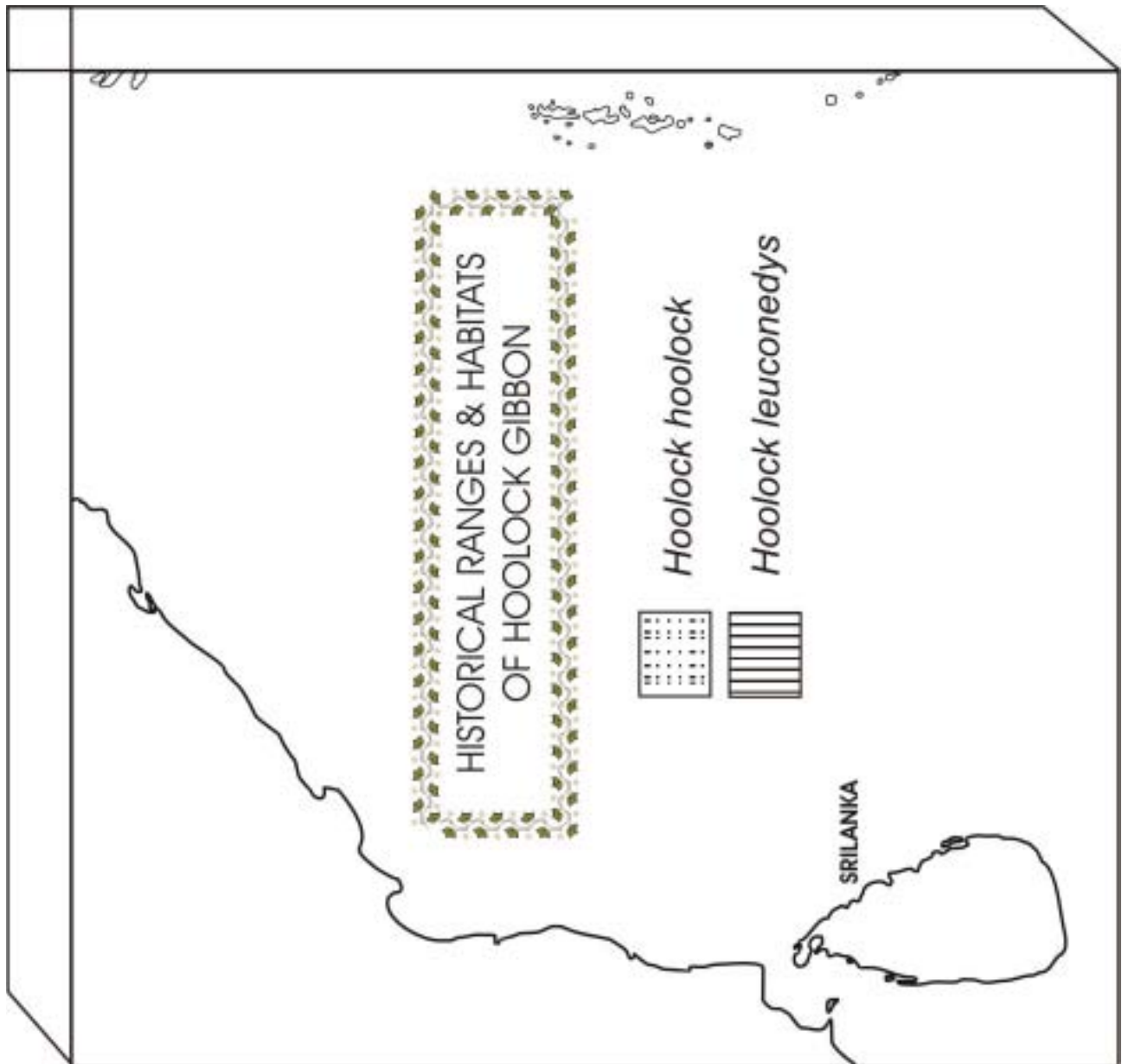
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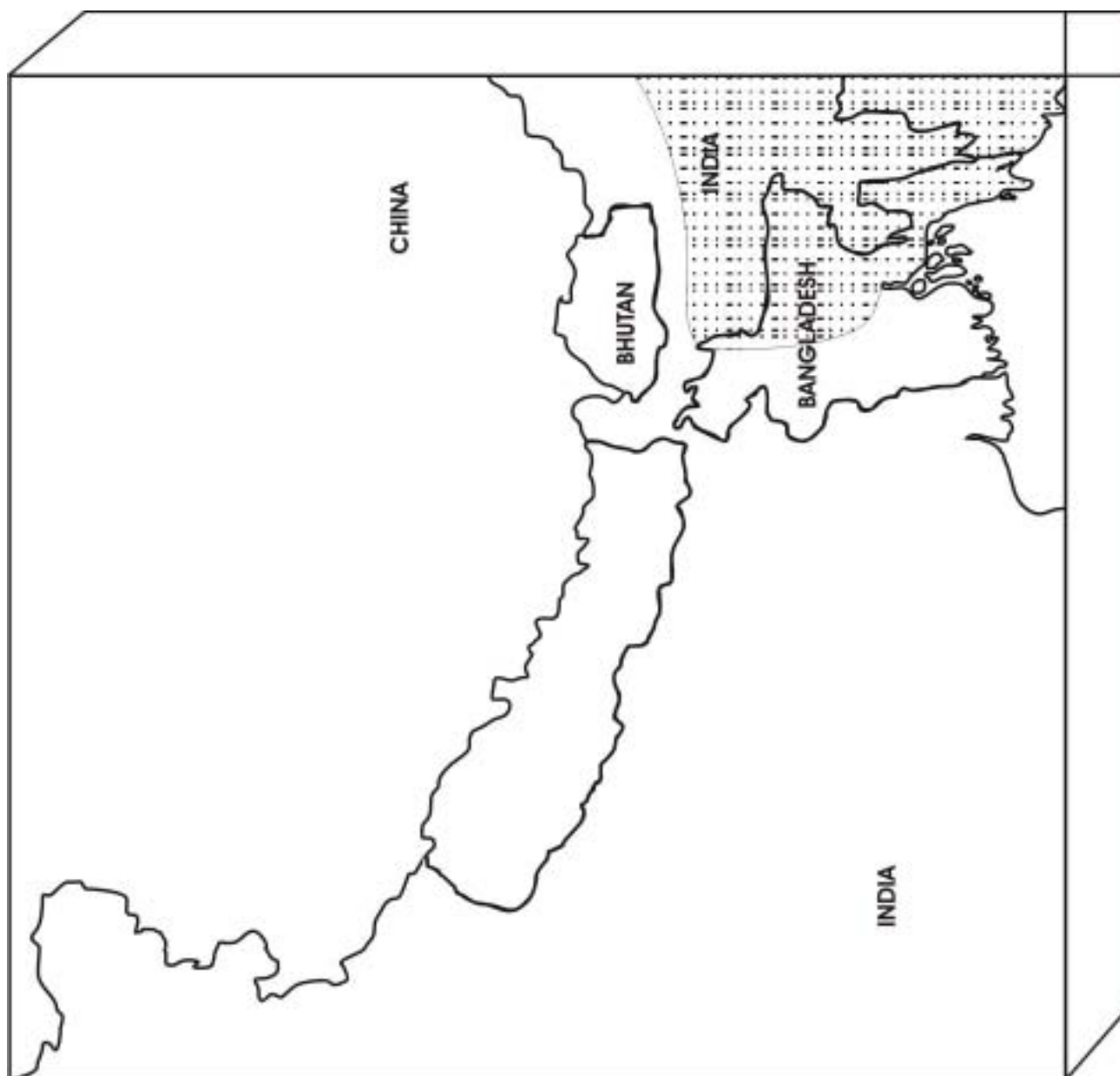
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HELP(ING) HOOLOCK GIBBONS HANG ON



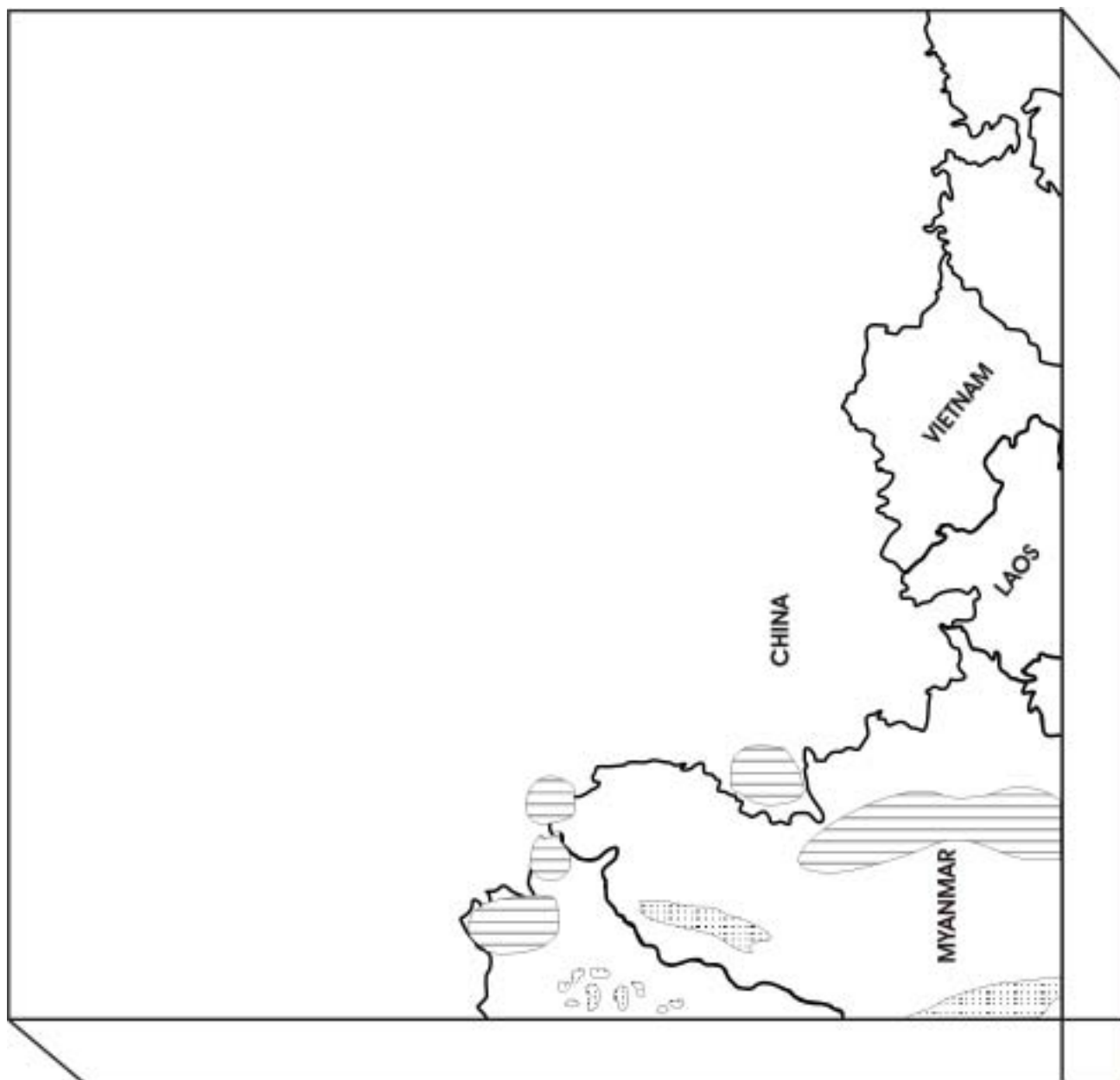
Current Hoolock Gibbon Ranges

Maps



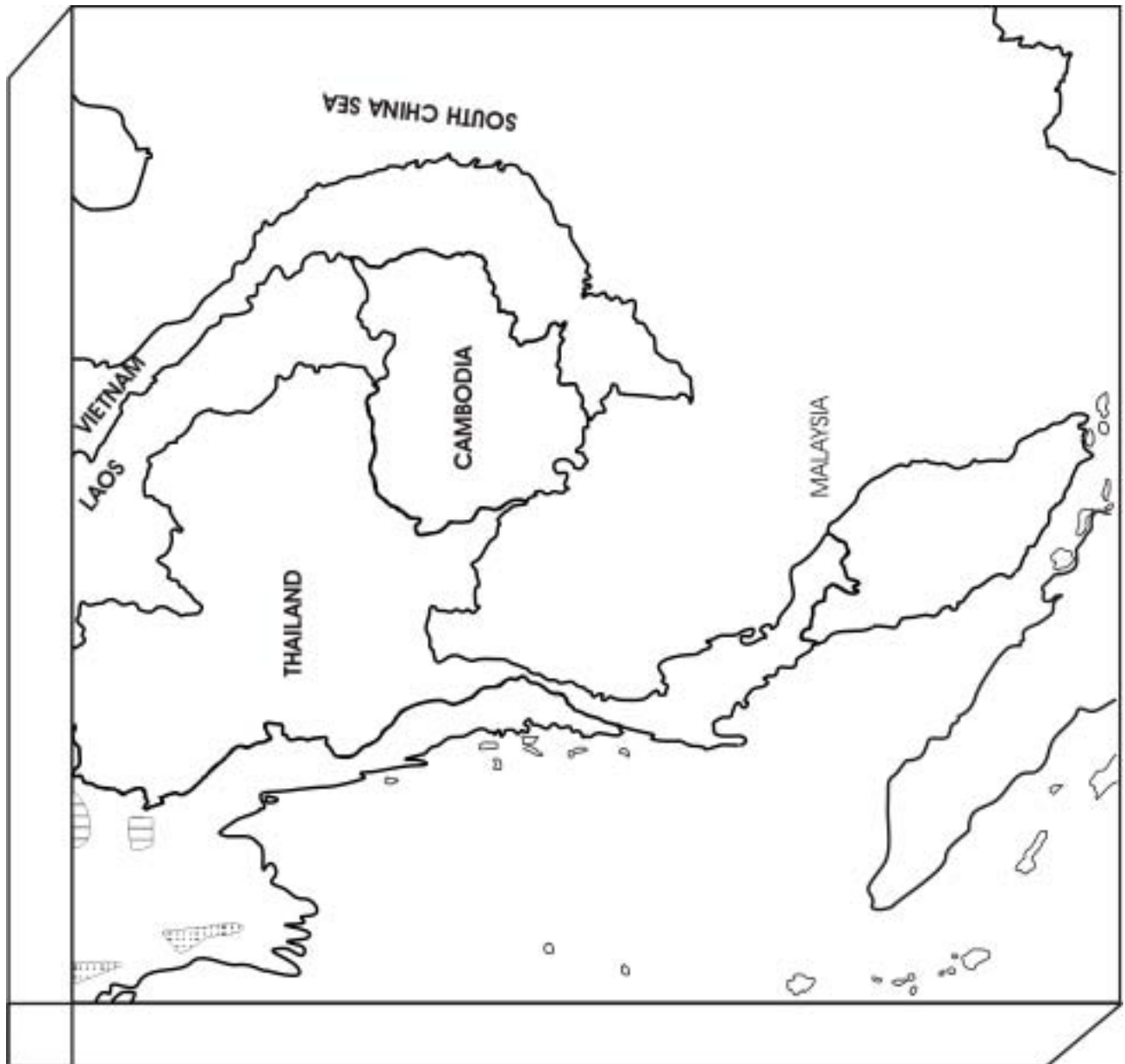
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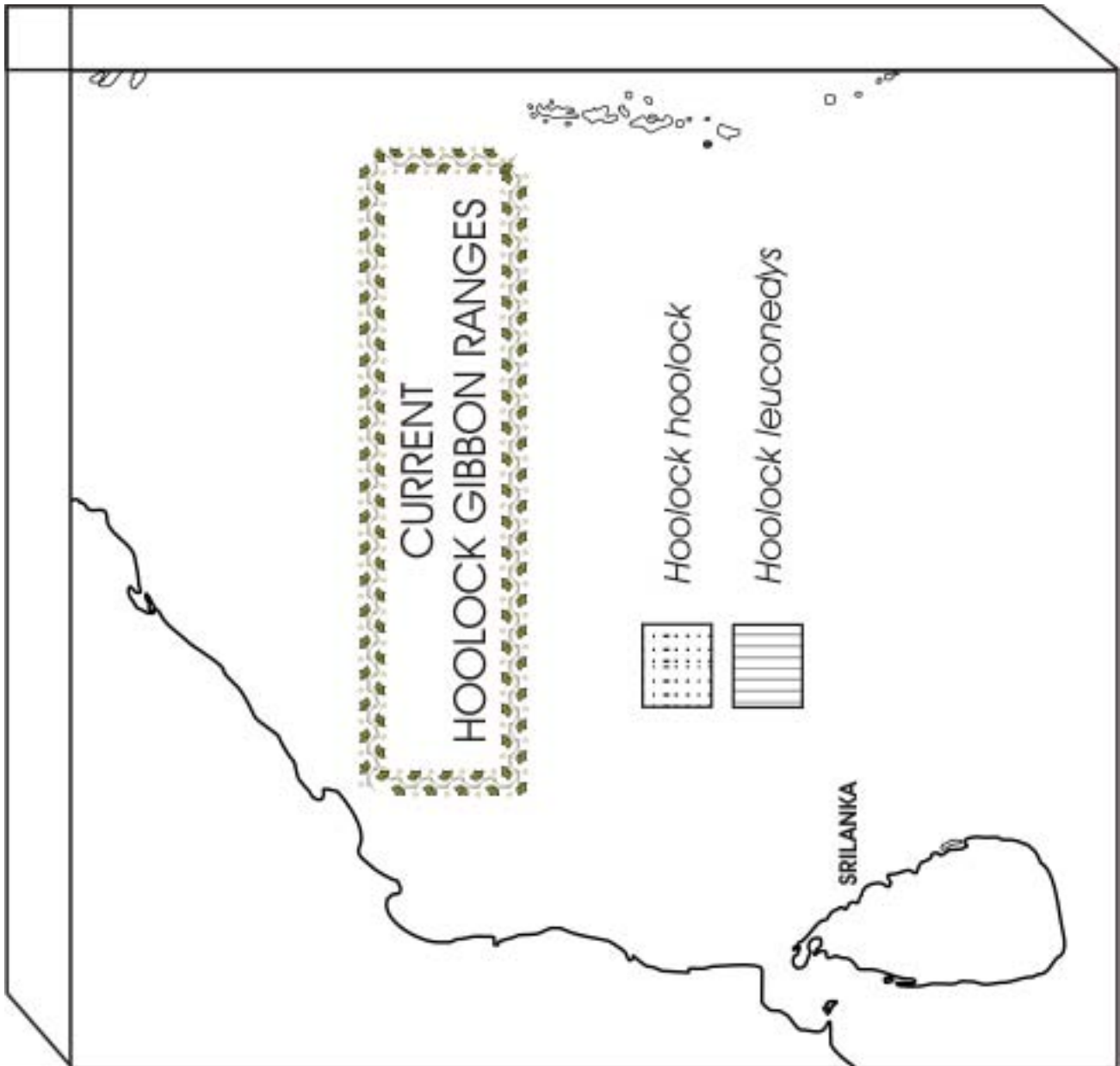


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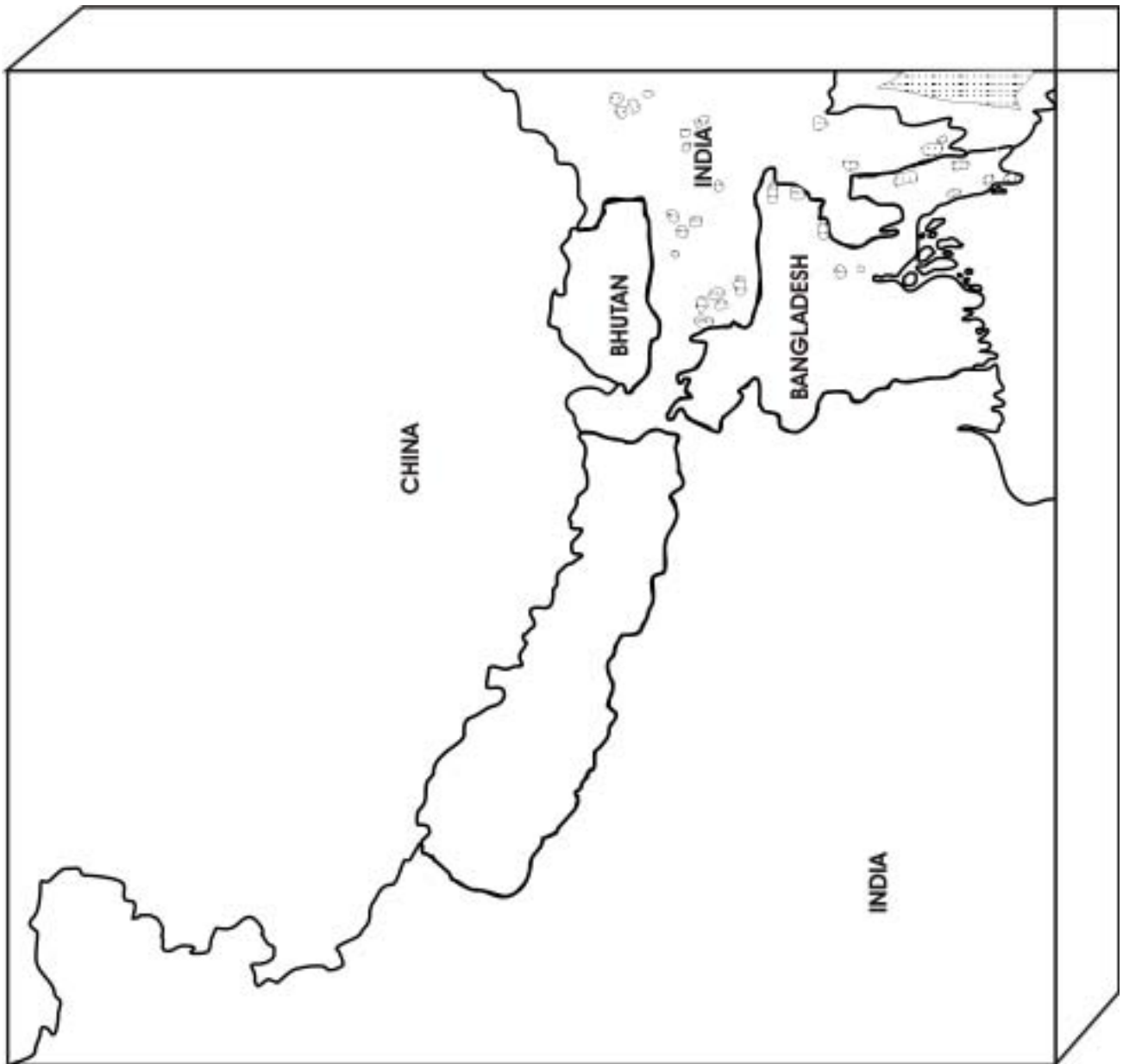


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HELP(ING) HOOLOCK GIBBONS HANG ON



HOOLOCK GIBBON BEHAVIOUR

For most people, unless they live close to a National Park/Sanctuary/Reserve Forest/Protected Area in Hoolock Gibbon range areas or to a zoo that holds Hoolock Gibbons, opportunities to observe a live animal are few and far between. Humans, being primates, exhibit the characteristic behaviours and adaptations of non-human primates. As a result, human beings make convenient models for studying some of the characteristics of primates. Using the following activities your audience will begin to appreciate Hoolock Gibbon adaptations and behaviours.

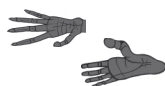
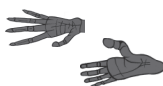
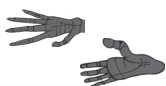


Each topic includes a group activity and a behavioural observation. For the behavioural observation, participants will need to observe him/her self. These activities can be used to give people an idea of behaviour they can look for when observing non-human primates at their local zoo or in the wild. If appropriate to your audience, encourage them to keep a field notebook for observations of Hoolock Gibbons. In the notebook, they should record the date, time, length of time and location of each observation, as well as details of the Hoolock's activities. Keeping a field notebook will model the behaviour of a field scientist studying Hoolock Gibbons. The group activities are described in boxes which you may wish to copy and hand out to participants.

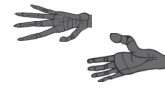
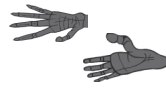
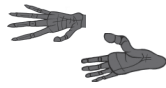
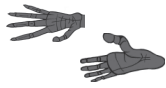


Activity 1: Body size and weight

Hoolock Gibbons are the smallest of all apes. (Ape include Bonobos, Gorillas, Orangutans, Chimpanzees, Gibbons and Siamangs). Hoolock Gibbons live in the canopy of the forest while man lives on land. In this first observation, participants compare their own height and body weight to those of a Hoolock Gibbon.



HELP(ING) HOOLOCK GIBBONS HANG ON



Instructions:

Break your audience into several groups and provide each group with a meter stick or measuring tape. Have each group measure the height of all its members and compute an average for each age range: 1-5, 6-12, 13-17, 18 and up. If possible provide a scale and have each group, in turn, weigh its members while the height is being measured. If a scale is not available, suggest individuals estimate their weight. Each group will create a comprehensive bar graph showing average height and weight for each age range. They will add to the graph the length and weight for the Hoolock Gibbon.

1. Body Size and Weight Activity

	Human	Hoolock Gibbon
Birth weight:	2.0 – 3.0 kg	550 – 750 gms
Adult Male Weight:	group average	6.1 – 7.9 kg
Adult Female Weight:	group average	6.0 – 6.6 kg
Adult Height:	group average	90 cms (average)

Activity 2: Arm length and body length

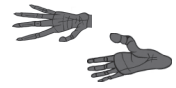
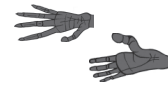
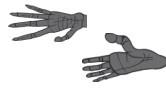
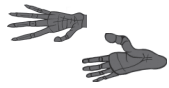
Hoolock Gibbon arms are 1.5 times longer than their legs. The arms are very long compared to their body length as well. Hoolock Gibbons are adapted to brachiate (swinging by the arms from branch to branch) through their forest canopy at a speed of 40 km /hr. with leaps of 15 meters in a horizontal plane.



Instructions:

Divide your audience in to four groups. Ask them to take their height of each member and his/her arm length. Ask them to list out the names of their group members on a paper and using a scale measure the height of the group members and write it against

HELP(ING) HOOLOCK GIBBONS HANG ON



their names. Ask them to measure the arm length (length from the shoulder to the tip of the middle finger) and record against their names. Ask them to divide the length of the arm by their height. The member with highest score is the Hoolock Gibbon of the group.

Example:

Name	Height	Arm Length	arm length /height
1. Sandeep	166 cm	76 cm	0.457
2. Anoop	157 cm	89 cm	0.566

Here Anoop is declared as the Hoolock Gibbon of the two. Find out the Hoolock Gibbon of the entire group.

So hoolock gibbons can swing through the trees faster than a man can run. Their legs are more in proportion, and also used for walking along branches.

For Discussion:

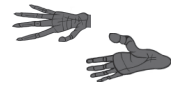
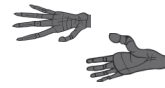
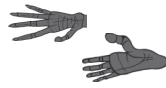
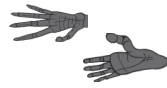
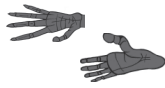
How Hoolock Gibbons are adapted for arboreal mode of living? How do you think that long arms can help Hoolock Gibbons? Compare other apes such as gorillas, chimps, orangutans and siamangs with Hoolocks and see how they differ in their adaptations.

Activity 3: Brachiation

Brachiation is swinging by the arms from branch to branch. Make the participants understand how Hoolock Gibbons brachiate.



HELP(ING) HOOLOCK GIBBONS HANG ON



Instructions:

Take the group outside and ask them to brachiate on a rope tied in between two trees. Low level poles like hockey goal posts can be tried if available. A ladder, if available can be used. Ask volunteers to take turns. Note the time taken to cover a particular distance (3 meters). Compare it with that of the speed traveled by Hoolock Gibbons in the forest. (Hoolock Gibbons can travel up to 40 km / hour).

Watch & Learn

Provide the following Website to your group to compare brachiation mechanics in gibbons, humans and to help forward dynamic simulation.

Check: <http://homepage.mac.com/wis/ASL/Projects/Brachiation/index.html>

For Discussion:

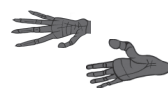
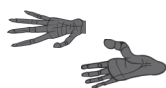
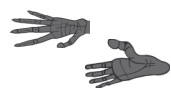
Why do you think it is useful to a Hoolock Gibbon to brachiate? What physical adaptations of Hoolock Gibbon make them more effective brachiators? (The relative length of the fore- and hind limbs to each other and to the length of the vertebral column shows considerable variation among primates. This is a wide adaptive range of primate locomotion. This is the result of adaptive trends of primate evolution has been the lengthening of both fore-and hind limbs and a shortening of the vertebral column). Can humans brachiate?

Activity 4: Bipedalism

Walking on two legs (bipedalism) is one of the unique features that distinguish humans and other non-human primates. Hoolock Gibbons, when they travel through the forest canopy, brachiation is, alternated with short, bipedal bouts over horizontal boughs or on the ground often using their arms for balance.

Instructions: Remind your participants that a human baby, until it walks, uses fore and hind legs (quadrupedalism) for locomotion. Ask the participants to cover a distance of 5

HELP(ING) HOOLOCK GIBBONS HANG ON



meters using both fore and hind legs. Use a stop watch to note the time taken for each person to cover the distance. Then ask them to cover the same distance walking.

Watch & Learn:

At the zoo, give participants the opportunity to watch a Hoolock Gibbon walk. How do they keep their arms while they walk?

For Discussion:

How can the quadrepedalism and bipedalism be compared between man and Hoolock Gibbon? How do you think bipedalism helps humans? How can it help Hoolock Gibbons? What is the evolutionary importance of bipedalism?



Activity 5: Climbing activity

Primates are expert climbers. Apes and other primates are adapted well for climbing. How do humans climb? What are we missing that we would need to climb like a primate?

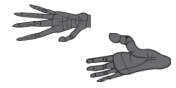
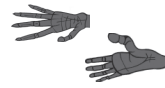
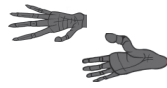
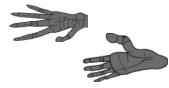
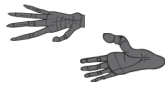
Instructions:

Take the group outside and find a tree that is suitable for climbing. Ask volunteers to take turns trying to climb the tree like a primate. Have volunteers experiment with different forms of tree-climbing, making note of which are most effective. If playground equipment is available, group members may climb (like children) and observe and discuss how people climb.

For Discussion:

At the zoo, give participants the opportunity to watch a primate climbing. Which body parts does it use? How does its manner of climbing differ from that of

HELP(ING) HOOLOCK GIBBONS HANG ON



humans? Tell participants to record their observations in their field notebooks. Why do you think it is useful to a Hoolock Gibbon to be a good climber? What physical adaptations of Hoolock Gibbons make them more effective climbers than humans?

Activity 6: Colouration

The fur of adult males is black with distinct white eyebrows. The fur colour of the adult female has a beige (very light brown) colouration. When the Hoolock Gibbon is born, its coat is a milky white colour. During the second half of the first year, the colour changes to black within a few months; only the brow-band remains white. The Hoolock Gibbons then resemble adult males in their fur colouration. Females turn a beige (a very light brown) colouration when attaining sexual maturity. The timing of the colour changes is variable and again takes several months to complete.

Instructions: Practice and learn:

Give your audience the outline of adult male and female drawings. Ask them to colour for specific sexes. (See appendix for Hoolock Gibbon outlines).

Discussions:

How does the colour help animals survive? What is the evolutionary significance of colour change?



HELP(ING) HOOLOCK GIBBONS HANG ON



Activity 7: Eating

Make your own menu

Hoolock Gibbons eat mostly fruits (51-89%), with the main supplement being leaves (6-32%); in addition, Hoolock Gibbons also consume smaller quantities of flowers; sometimes birds' eggs, young birds and insects. However, the diet composition varies according to the availability of food source. Among fruits, figs appear to be the most important food item and make up about 60% of the fruits consumed by Hoolock Gibbons in Northeastern India while it is about 38% of their total diet in Hoolock Gibbon that lives in Bangladesh. Preferred foods are Cham, Kathal, Amari, Amora, Kadam, Urium, Jamun, Thekera and several species of *Ficus*. A total of 225 species of plants belonging to 63 families have been identified as food plants. Fluid intake is largely acquired from fruits but also obtained from licking bark and leaves after rains. They occasionally drink from springs.

Instructions:

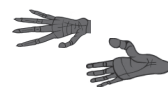
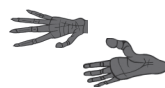
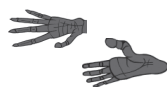
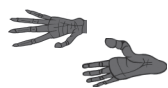
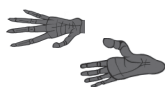
Ask your participants to prepare a menu for a day. Compare it with that of Hoolock Gibbons daily requirements. Ask them to identify some of the common food plants of Hoolock Gibbons.

For Discussion:

How do they eat? Do they chew?
Do they hold the food in their limbs? Make notes during one of your own meals. How your eating and chewing habits compared to those of the Hoolock Gibbons? What will happen if the food plants are cut down?



HELP(ING) HOOLOCK GIBBONS HANG ON



Some preferred food trees of Hoolock Gibbons

Common Name	Scientific Name	Family
Bandardima/Rata	<i>Dysoxylum binectariferum</i>	Meliaceae
Bhelkor	<i>Aristolochia tagala</i>	Aristolochiaceae
Bonpetha	<i>Chrysophyllum roxburghii</i>	Sapotaceae
Dewa Sam/Dewa, Dewphal,		
Dewa-cham, Bonkanthal	<i>Artocarpus lacucha</i>	Moraceae
Dimoru/Dumur	<i>Ficus hispida</i>	Moraceae
Ficus (Bor)/Bot	<i>Ficus bengalensis</i>	Moraceae
Gahori Sopa	<i>Magnolia griffithii</i>	Magnoliaceae
Gamari/Gamari, Gambari, Gambar	<i>Gmelina arborea</i>	Verbenaceae
Jack Fruit/Kanthal	<i>Artocarpus heterophyllus</i>	Moraceae
Jamuk, Jamun/Jam,		
Jaman, Kalojam	<i>Syzygium cumini</i>	Myrtaceae
(Kohota)/Banjam, Khudijam	<i>Syzygium fruticosum</i>	Myrtaceae
Jari/Pakur	<i>Ficus benzamina</i>	Moraceae
Kadam/Kadam, Kadamba	<i>Anthocephalus chinensis</i>	Rubiaceae
Kola Jamuk/Gulam	<i>Syzygium oblatum</i>	Myrtaceae
Kuji Thekera/Jam, Jaman, Kalojam	<i>Syzygium cumini</i>	Myrtaceae
Lali Poam	<i>Dysoxylum gobara</i>	Meliaceae
Lemtem/Chalmoogra	<i>Gynocardia odorata</i>	Flacourtiaceae
Letchu/Latka, Latkan,		
Dubi, Natuk	<i>Baccaurea ramiflora</i>	Euphorbiaceae
Mango/Aam, Am	<i>Mangifera indica</i>	Anacardiaceae
Modar/Palita-mandar	<i>Erythrina indica</i>	Papilionaceae
Odal/Udal	<i>Sterculia villosa</i>	Sterculiaceae
Paroli/Dharmara, Kamrang,		
Pahari-awal, Atkapali	<i>Stereospermum colais</i>	Bignoniaceae
Sam Kothal/Chapalish, Chambal,		
Chambul, Cham, Kathlicham	<i>Artocarpus chama</i>	Moraceae
Selleng/Billa, Kalabel, Chhotomel,		
Champata	<i>Sapium baccatum</i>	Euphorbiaceae
Urium/Uriam	<i>Mangifera sylvatica</i>	Anacardiaceae

HELP(ING) HOOLOCK GIBBONS HANG ON



Syzigium sp.



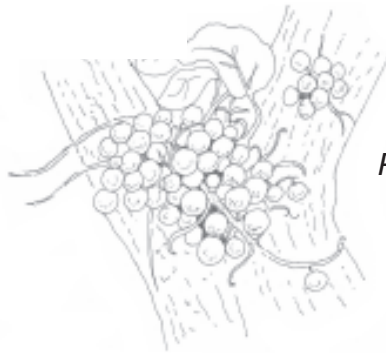
Dysoxylum sp.



Garcinia sp.



Gynocardia sp.



Ficus sp.



Aristolochia sp.

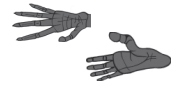
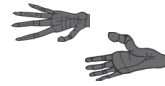
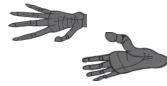
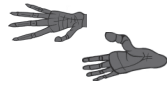
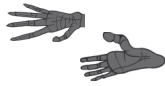


Artocarpus sp.



Mangifera sp.

HELP(ING) HOOLOCK GIBBONS HANG ON



Activity 8: Home range (Territory)

Home ranges are the areas where animals live and carry out their activities for a long period of time. Hoolock Gibbons often guard their home ranges carefully. Home range for Hoolock Gibbons will vary from 14 – 55 hectares. A group covers a day range of about 600 – 1200m. Hoolock Gibbons defend their territories by their loud morning and afternoon songs and also by actively chasing intruders from other groups.

Instructions:

Ask participants what they think the advantages are of having a home range/territory. As a group, come up with a list of ideal territory components (food, shelter, space).



Do and Learn:

Ask participants to draw a map of their “home ranges” (the places they routinely frequent in their daily lives). Each person's map should indicate where (s)he sleeps, eats, finds food, plays, go to school, etc.

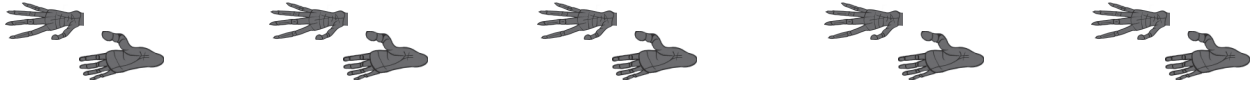
For Discussion:

Hold a group discussion of the necessary elements in a Hoolock Gibbon's home range. How do Hoolock Gibbons demarcate their territory? Ask your group to consider what happens when humans encroach upon a Hoolock's home range. Make them understand that when human encroach, the forest animals lose their home forever.

Activity 9: Communication

The major methods of communication among Hoolock Gibbons are vocal, olfactory and tactile. Hoolock Gibbon groups produce loud songs in the early morning. Songs probably serve to defend resources such as territories, food trees, partners, but may

HELP(ING) HOOLOCK GIBBONS HANG ON



also help to attract potential mates. Grooming is a social behavior in hoolocks and probably plays a role in reinforcing the bonds between group members.

Instructions:

Ask the group members to make a list of non-verbal forms of communications human use under different conditions. They play “dumb charades” designed to communicate various emotions without using words. Ask for five volunteers. Have them stand with their backs to the rest of the group. Show the volunteers a word written on a piece of paper such as ‘happy’, ‘sad’ and ‘angry’, or any other emotions. Ask them to turn around and show the emotion on their faces. The group members should be able to guess the emotions easily. Or you can write a few examples of situations such as “your good friend is moving away” and ask the volunteers to communicate how (s)he feels. Point out facial expressions, postures, gestures, sounds etc.

Watch & Learn:

Let your participants record observations of the volunteers communication (eg., sound, body positioning, etc.) in their field notebooks.

For Discussion:

Now that your participants have had some practice as “behavioural scientists,” ask them to think about what it is like to be a behavioural scientist studying Hoolock Gibbon in the wild. What would be the most exciting? What would be the challenges and difficulties? What characteristics and training would the scientist need in order to become successful in studying Hoolock Gibbons?



HELP(ING) HOOLOCK GIBBONS HANG ON

Activity 10: Adaptation – opposable thumb

Instructions:

One of the special features primates have is an opposable thumb. Humans also have opposable thumbs. Ask students to look at their thumb - its position, length, the way they can move it etc. The thumb plays a major role in helping humans hold, like opening a door, eating etc. Without an opposable thumb, it would be difficult. The same goes for primates. You can do a simple exercise to teach them about the importance of an opposable thumb.

Do and learn:

Help the children to tie their thumbs to their hands using a plaster or cloth so that they cannot be moved or used. Ask them to attempt some simple tasks like tying their shoelaces or eating chips. This can be timed to see who does it fastest.



HELP(ING) HOOLOCK GIBBONS HANG ON



HOOLOCK GIBBON HISTORY

Directions:

In words and pictures, timelines can provide dramatic portrayals of important historical events. They can also serve as the basis for numerous maths, arts, and language skills activities. Before you begin, place each date entry and the accompanying text on its own small card or blank sheet of paper.

Depending on the size of your audience, hand out one or more of these “date cards” to each participant. Also give each participant a blank piece of paper and make available drawing or painting materials. Encourage your participants to illustrate the timeline events and to write captions explaining how they feel about the events being illustrated.

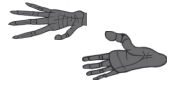
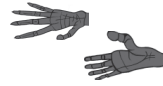
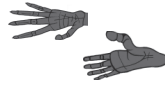
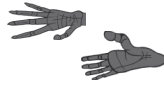
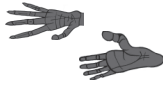
Through this process, your audience will be creating an illustrated “Hoolock Gibbon History,” a lasting exhibit on the history of Hoolock Gibbons in modern times. You may wish to have audience members take turns posting their time line text and illustrations in chronological order. Before putting them up, have each person explain to the group what their illustrations show.

To the events below, you may wish to also add:

- The date of your programme
- Years your participants were born
- The dates of any local laws that impact on Hoolock Gibbons
- The dates any local reserves or protected areas were created, and the names of those areas
- The dates of Hoolock Gibbon meetings and workshops
- Record of any incidence reported in the local newspaper related to Hoolock Gibbons



HELP(ING) HOOLOCK GIBBONS HANG ON



Discussion

After your timeline has been posted, use the following questions to initiate discussion:

What trends do you notice in the history of Hoolock Gibbons during the last 200 years?

What is the first evidence of conservation?

What does this information tell you about the relationship between the Hoolock Gibbons and humans?

What does this information tell you about the role of Hoolock Gibbon in human culture?

INFORMATION FOR DATE CARDS

1834

Harlan, a scientist, first described the species Hoolock, naming it as *Simia hoolock*



1855

The first tea plantations were created in Assam by cutting down huge areas of Hoolock Gibbon forests.

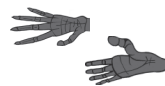
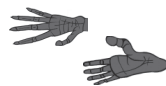
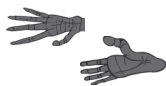
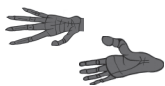
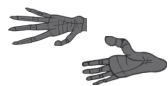
1881 - 91

Blanford named *Simia hoolock* as *Hylobates hoolock*

1900s

Primary forests including Hoolock Gibbon range areas were cut in early to mid 1900s to increase tea cultivation in northeastern India and Bangladesh.

HELP(ING) HOOLOCK GIBBONS HANG ON



1931

Hoolock was described in great details in the book called *Fauna of British India* authored by Pocock

1951

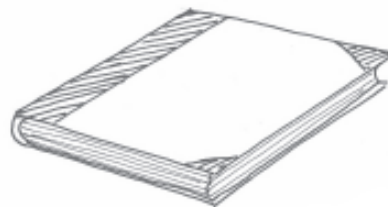
Hoolock Gibbons found a place in the checklist of Palearctic and Indian mammals

1967 - 72

Primate Taxonomist, Groves worked out the classification of Hoolock Gibbons in detail while comparing them with the South East Asian species

1969

It was reported that gibbon flesh was a part of food of the local tribes. Several tribes hunt Hoolock Gibbon for meat, bones and blood



1972

Indian Wildlife (Protection) Act of 1972 (and its amendments in 1991 and 2002) has placed Hoolock Gibbon under Schedule – I

1973

Hoolock was included in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Appendix I.

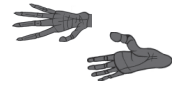
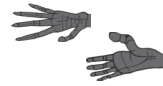
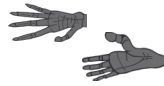
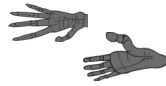
1974

Included under 3rd Schedule of Bangladesh Wildlife (Protection) Act, 1974

Mid 1980s

In Bangladesh, Hoolock Gibbon populations have been estimated to be around 3000 individuals.

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1995

Habitat destruction was reported to be the major threat to the survival of Hoolock Gibbons.



Early 1990s

Hoolock gibbon population in Bangladesh declined to about 200 individuals.

2002

Conservation Assessment and Management Plan workshop for South Asian Primates. IUCN rated the Hoolock Gibbon as Endangered globally.

2002 – 2005

Eight localities in Bangladesh and 10 localities in India have lost Hoolock Gibbons between 2002 and 2005.

2003

The total population in India has been estimated to be more than 2600 individuals.

2004

The total Bangladesh population has been estimated as about 202.

2005

Population Habitat and Viability Assessment (P.H.V.A.) workshop for Western Hoolock Gibbon held in Dhaka, Bangladesh. Fifty scientists from India, Bangladesh and USA participated in it.



2006

The major habitat destruction in Northeastern India are 'jhum' cultivation both 'pan jhum' and mixed 'jhum'

HELP(ING) HOOLOCK GIBBONS HANG ON



2006

First distribution records of the Eastern hoolock Gibbon, *Hoolock leuconedys* was reported from Lohit district of Arunachal Pradesh, India by Jayanta Das and others.

2006

Hoolock Gibbon declared as one of the IUCN SSC Primate Specialist Group's Twenty-five most endangered primates of the world at a meeting of International Primatological Society nominated by Sally Walker of Zoo Outreach Organisation.

2006

Russell Mittermeier, Chair of Primate Specialist Group, visited Assam to see the Hoolock Gibbon.



2010

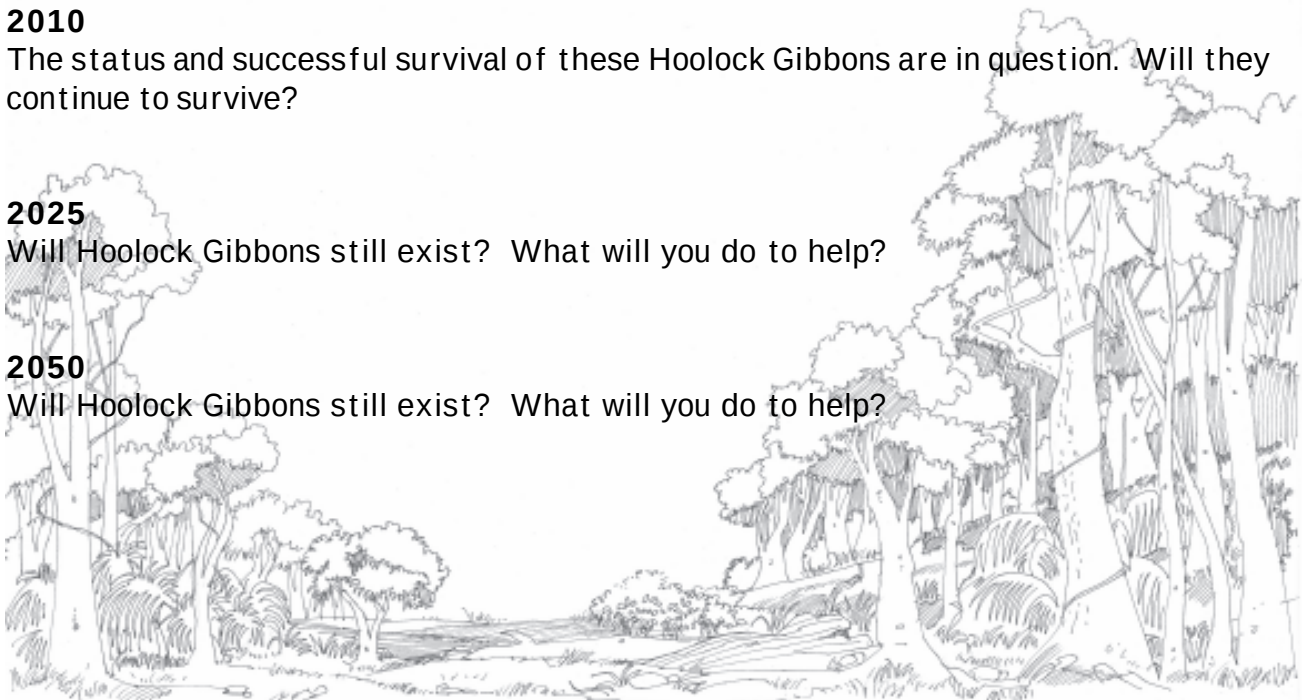
The status and successful survival of these Hoolock Gibbons are in question. Will they continue to survive?

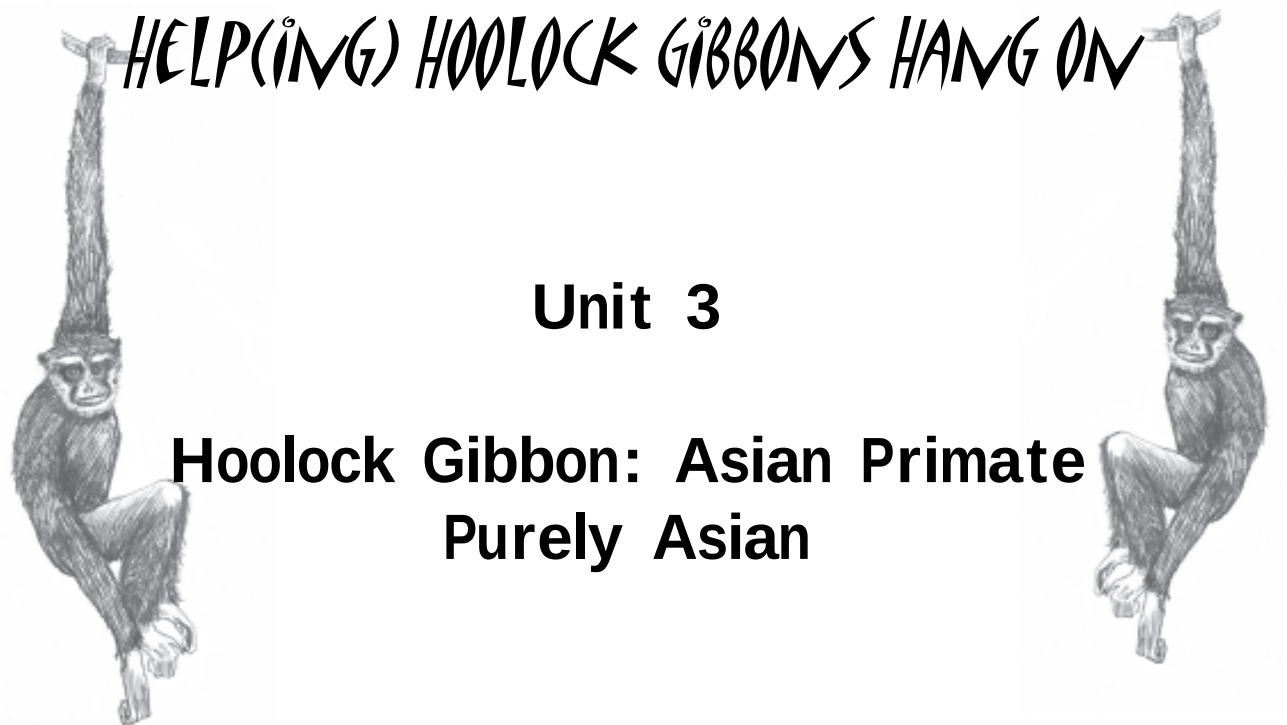
2025

Will Hoolock Gibbons still exist? What will you do to help?

2050

Will Hoolock Gibbons still exist? What will you do to help?





HELP(ING) HOOLOCK GIBBONS HANG ON

Unit 3

Hoolock Gibbon: Asian Primate Purely Asian

Hoolock Gibbon in our Culture, Page 69

Asian perspectives: Understanding and Play acting, Page 71



HELP(ING) HOOLOCK GIBBONS HANG ON

UNIT 3: HOOLOCK GIBBON: ASIAN PRIMATE PURELY ASIAN

Introduction to Unit 3

This unit encourages participants to explore the cultural role of Hoolock Gibbons. Understanding the wide range of views and images of Hoolock Gibbons in different places and at different times throughout history is a critical factor in leading people to understand how addressing different perspectives is critical to Hoolock Gibbon conservation. This will establish the important role that Hoolock Gibbons have played and continue to play in the cultures of India, Bangladesh, Myanmar and Southern China. Participants will be encouraged to explore important cultural legacy that will vanish if Hoolock Gibbons become extinct.

Through the materials in this unit, people will examine Hoolock Gibbons in arts, advertising and poetry in and around South Asia. Through these media, the important role that Hoolock Gibbons have played in the culture of humans will be established.

1. Hoolock Gibbons in our culture

In some of our culture, the Hoolock Gibbon is a symbol. Ask members of your audience to work in small groups to think of examples of the Hoolock Gibbon as a symbol in their own culture. Have them think of folklore, stories, art, drama, advertising, songs, literature, etc. You could turn this activity into a competition to see which group can come up with the most examples.

Create a composite list of all examples as the groups present their lists. Ask how Hoolock Gibbons influence our culture. What characteristics of Hoolock Gibbons lend themselves to use in all these different contexts? Would Hoolocks remain as cultural symbols if they no longer survived in the wild?

HELP(ING) HOOLOCK GIBBONS HANG ON

Belief and superstitions of people in Hoolock Gibbon territory.

(Source: Narayan Sharma)

- In Rinsangri, the villagers in a small village in West Garo Hills, Meghalaya, believe that Hoolock Gibbons give a vigorous call if there is some festival or other ceremony in the village but they become silent if somebody dies. This strong faith is quite evident here, resulting in a strong affection towards the Hoolock Gibbon. Though the children kill birds and other animals with the help of a catapult, Hoolock Gibbons never become the target of this mindless act.



- Gibbon call acts as a weather predictor! People adjacent to Rani and Gorbhanga Reserve Forest, Assam have a belief that Hoolock Gibbon call can forecast weather i.e., if Hoolock Gibbons call on a particular day, it can be predicted, according to some villagers, that the next day will be a rainy day.

- Some women in Ngopa village adjacent to Lengteng Wildlife Sanctuary, Mizoram wear Gibbon bone on their feet tied with a thread. It is believed that the bone could cure gout and other inflammatory problems and make their feet stronger to sustain hardships of hill life!

- It is believed in Mizoram and Meghalaya that a Hoolock Gibbons call is dependent on the moon cycle!! ... people believe that if it is full moon, Hoolock Gibbon call regularly and more frequently during day time. The frequency reduces as the moon changes its shape and during New Moon they rarely call. Field Biologists have also observed this in the wild but it needs further research. (A.K. Gupta and Sharma)

- In Dampa Tiger Reserve, people used to kill Hoolock Gibbons to drink the blood hot as they believed this would kill the malarial parasite.

- In Selbalgri, another village adjacent to Rinsangri there was a tradition of sacrificing Hoolock Gibbons and offering its head to please the forest deity. The small village forest is still present but Hoolock Gibbons are not sacrificed anymore.

Remind your audience that these are just superstitions.

HELP(ING) HOOLOCK GIBBONS HANG ON

2. Asian perspectives: Understanding and Play acting

Today people have different views of Hoolock Gibbons. To save the Hoolock Gibbons, it is important to be aware of these different perspectives and use them effectively to educate and involve as many people as possible in conservation efforts. In this activity participants will play the roles of different people from many different perspectives.

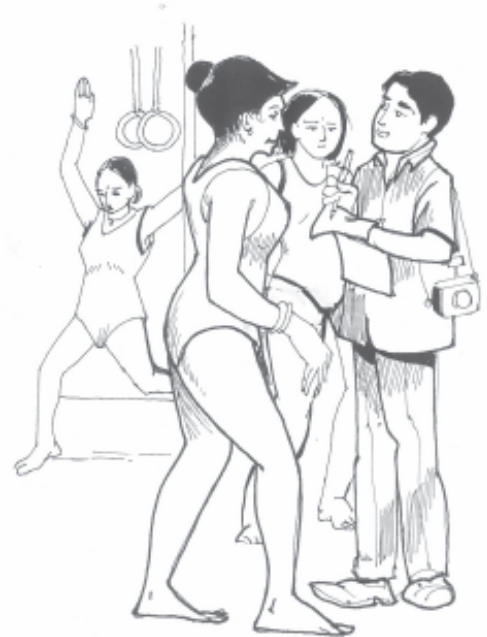
Divide your audience into the following groups: acrobats, advertising executives, architects, artists, farmers, T.V. crew, politicians, playwrights, song writers, university professors, and provide the appropriate pages of instructions to each. Give them time to work on their assignments and then have each group display their roles to the others.

After the groups have been given sufficient time to prepare their tasks have each come up and present their roles. Conclude the activity with a discussion of how each expression can be used to motivate people from all walks of life to care and actively participate in Hoolock Gibbon conservation.

Acrobats:

You are a team of international gymnasts who won a Gold medal in a recent competition. One among your team members gained interest in gymnastics after his/her visit to a nearby forest area. (S)he once happened to see primates doing acrobatics and (s)he wanted to do by him/herself. Immediately after the announcement of the award the sports commentator interview the team and asking your team 'Tell me, who inspired you...' As a reply

1. Narrate what made him/her to appreciate Hoolock Gibbon or any primate
2. How it influenced to pick up interest in gymnastics
3. How the team feels about him/her and his interest



HELP(ING) HOOLOCK GIBBONS HANG ON

Advertising Executives:

All over the world, people use animals as symbols for products they wish to sell. Pretend that you are advertising executives. A company has just come out with a product and wants you to create an advertisement using the Hoolock Gibbons as a symbol. Your job is to create an advertisement, as it would appear on a poster, in a magazine or on television. Keep in mind the many characteristics of Gibbons that you have learnt and incorporate them into the advertisement.

1. Decide what product you will advertise and give it a name (example: Hoolock locks)
2. Choose three facts or characteristics of Hoolock Gibbons that you will emphasize in your advertisement
3. Design an advertisement that you will present to the rest of the audience.



Architects:

Pretend you are a group of architects specialized in zoo design. The zoo where you work has decided to apply for a large fund that will pay to restructure the Hoolock Gibbon enclosure. As zoo architects you must design a new exhibit for them. You do not want them to remain in the cage that they are in right now. Your job is to build an exhibit for the Hoolock Gibbons that closely resembles their natural habitat. The goal of your exhibit is to get people to appreciate how beautiful and special Hoolock Gibbons are while at the same time taking care to address the needs of the animal who will be in the enclosure.

1. Make a list of elements of a Hoolock Gibbon's real habitat that you will need to recreate for your zoo exhibit.
2. Do a drawing of your exhibit. Make sure to indicate how the Hoolock Gibbons will be separated from zoo visitors. (A glass? A wall? A moat?)
3. Design signs for your exhibit. It should teach people of all ages about Hoolock Gibbon and why they are in danger of extinction and how people can help protect them.



HELP(ING) HOOLOCK GIBBONS HANG ON

Artists:

Primates have been a part of art throughout history but Hoolock Gibbons have very rarely been featured. As artists, your group has been hired to paint a mural or poster promoting Hoolock Gibbon protection.

1. Draw, paint or create your mural (a painting that is applied to a wall surface) or a poster.
2. Decide on the message of your mural and write a slogan that will appear on it.
3. Decide on a scene you will depict and the parts of it that each member of your group will be responsible for.



T.V. Crew:

All over the world television plays an important role in directing public opinion to support or oppose conservation. As documentary filmmakers concerned about Hoolock Gibbons, your role is to design a pre-film script on Hoolocks.

1. Decide what you would like your documentary to focus on.
2. Make a list of two or three sorts of people you would like to interview for the story. You can even interview some of the other groups in the roles they have taken on for this activity.
3. Write a short script outlining the story printing out the issues pertaining to Hoolock Gibbons.



HELP(ING) HOOLOCK GIBBONS HANG ON

Politicians:

Politicians play a major role by taking decisions and thus influence whether wildlife has a chance to survive or not. While making policies, politicians need to take into account the needs of the people, individual lobby groups and the nation as a whole. As politicians today you must write a speech that you will be making to the public just before elections in which the main agenda you have to address is Hoolock Gibbon conservation.

1. Make a list of groups of people you think would be in favour of Hoolock Gibbon conservation and another list of people who may oppose it.
2. Make a list of cost and benefits of Hoolock Gibbon conservation for your state
– look at issues pertaining to eco-tourism, notifying areas as wildlife sanctuaries and how that might affect people, etc.
3. Write a speech advocating a Hoolock Gibbon Conservation Plan that balances costs and benefits and takes into account the needs of the people and Hoolock Gibbons. Present your speech to other groups.



Songwriters:

Music is the soul of any culture in any region. Use this powerful medium of communication to raise awareness about Hoolock Gibbon and to get support of the people for this wonderful animal. As songwriters your responsibility is to write a song that promotes Hoolock Gibbon conservation.



1. Make a list of the points you wish to highlight.
2. Write the lyrics of the song and set it to a popular tune.
3. Rehearse your song and perform it for the other groups.

HELP(ING) HOOLOCK GIBBONS HANG ON

Playwrights / Street play:

Street plays have always been an important part of our culture. As playwrights your job is to write a play that can be performed on the streets that will make your audience stop and listen to the conservation message about the Hoolock Gibbons.

1. Decide on the main issues you will address and write the script.
2. Identify the characters and allot roles to each member.
3. Rehearse and present your play to other groups.



University Professors:

Your university is recently undergoing a change in its curriculum to include environmental studies as part of the course work. As university professors your interest is in adding a lesson on primates with special reference to Hoolock Gibbons and their conservation.

1. Make a list of the various issues you would like to include in the lesson plans.
 2. Design activities and structure the chapters in the way that you would like the students to learn.
 3. Make a mock test sheet for the lesson plan.
- Present the lesson plan to the other groups as if you were to teach them as professors.



HELP(ING) HOOLOCK GIBBONS HANG ON

After the groups have had time to complete their assignments, provide a substantial amount of time for each group to make a presentation.

Acrobats should share their experience with the audience about their secret of success.

Advertising Executives should present and explain their advertisement.

Architects should present and explain their design.

Artists should present and explain their mural.

T.V. Crew should explain their story line.

Politicians should present their speech.

Songwriters should sing their songs.

Playwrights / Street play should perform a scene from their play.

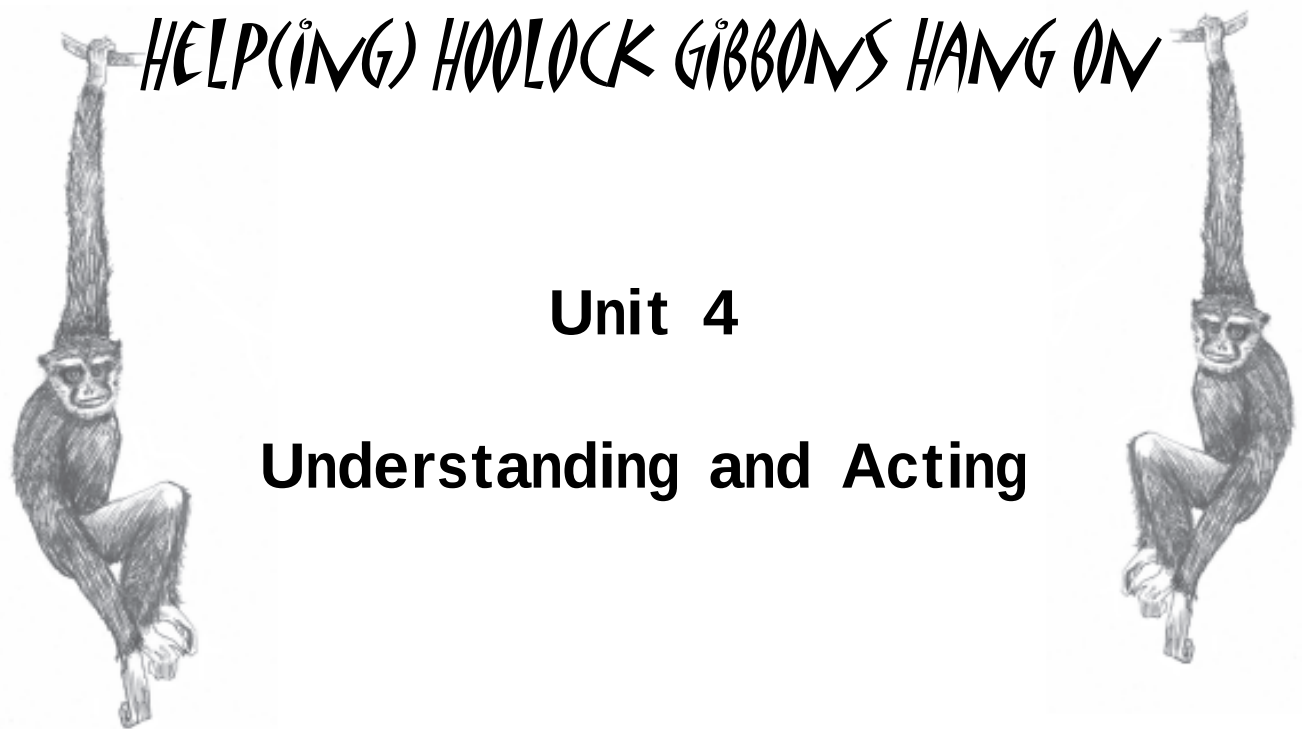
University Professors should explain how Hoolock Gibbon conservation biology can be taught.



HELP(ING) HOOLOCK GIBBONS HANG ON

Unit 4

Understanding and Acting



Conservation Biology: Modern Science of Saving Threatened Taxa, Page 78

Come with us to Gibbon Wildlife Sanctuary / Lawachara National Park, Page 79

Examining the Feeding Ecology of Hoolock Gibbon, Page 83

How Many Hoolocks? Studying Hoolock Gibbons in their Home, Page 86

Captive Breeding: Citizens Discuss a Contentious Issue, Page 89

HELP(ING) HOOLOCK GIBBONS HANG ON

Unit 4: Understanding and Acting

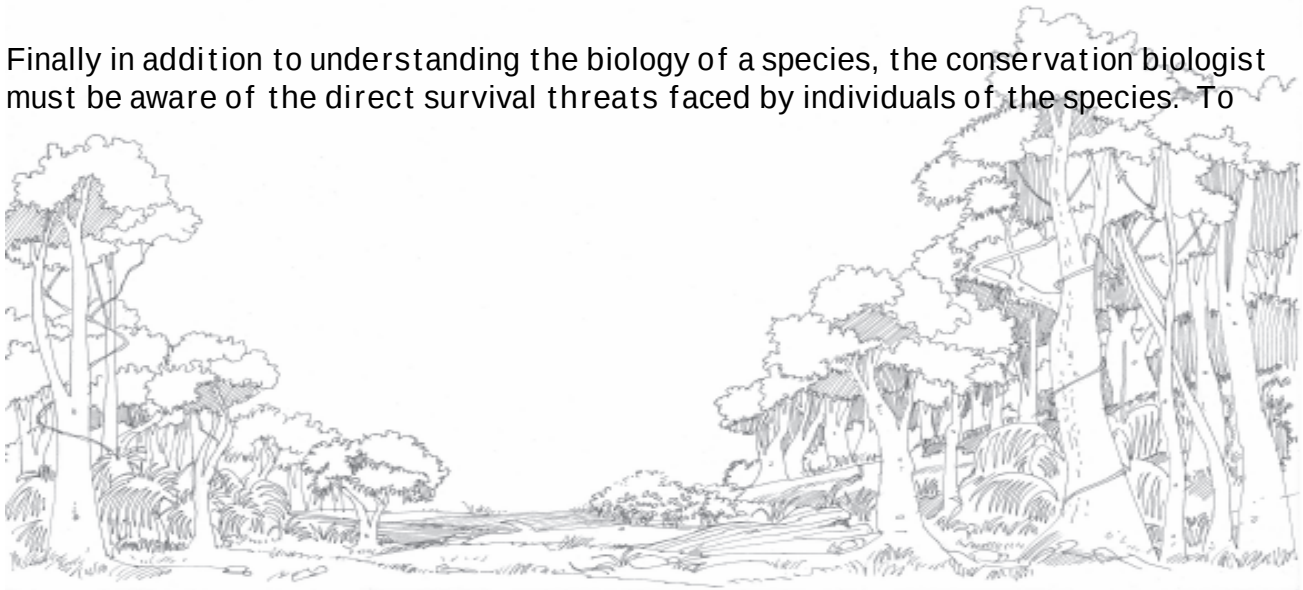
Conservation Biology: Modern Science of Saving Threatened Taxa

Appreciating the beauty and value of the Hoolock Gibbon is one thing; saving these primates from extinction is quite another. Imagine you were charged with the responsibility of coming up with a plan to save the Hoolock Gibbons in a National Park. How would you do it? What questions would you need to ask? What information would you need to assemble to figure out your course of action?

Much of the work of threatened species protection is the job of conservation biologists. Conservation biologists are the people who document how many individuals of a given species survive in a particular place. They determine what resources are required to support a healthy population. Often, these requisite resources take a lot of time and effort to define, but living space is one of the most important components. To assess the health of a population and its survival needs, a biologist must determine what the animal eats at different times of the year, and how abundant those food sources need to be.

Knowing how much space a Hoolock Gibbon individual or a troop needs and how much food they eat is not enough. To determine how to save Hoolock Gibbons, it is important to understand their behaviour. A biologist must know about their social organisation: whether males or females are monogamous or polygamous; how many babies a female has and how often; how likely those babies are to survive to adulthood; and what dangers they face along the way.

Finally in addition to understanding the biology of a species, the conservation biologist must be aware of the direct survival threats faced by individuals of the species. To



HELP(ING) HOOLOCK GIBBONS HANG ON

what extent does habitat destruction, poaching, cultivation, or other human activities impact on their survival?

Beating the Clock

In summary, effective conservation of a species requires deep understanding of its biology. Unfortunately, it can take years to assemble that sort of information – years that an endangered species may not be able to spare. As a result, conservation biologists are often trying to beat the clock, working to develop effective conservation plans while the animals they study disappear before their very eyes.

This set of activities, **Understanding and Acting**, is intended to give people a sense of the process a conservation biologist must pursue in order to assemble the basic information necessary to save a species. Our focus will be the Gibbon Wildlife Sanctuary located at Jorhat, Assam in Northeastern India and Lawachara National Park, in the Moulvibazar Forest Range of the Sylhet Forest Division, Bangladesh. Researchers from Hoolock Gibbon range countries are working together on various aspects of its ecology and conservation. Their studies include population status, behaviour studies, distribution studies, habitat, taxonomy, and its interaction with plants. There are some studies in other parts of the world in captive conditions to know about its genetics, taxonomy and health. By using this manual, you are also part of this programme. Education and training are important components of the Hoolock Gibbon conservation programme.

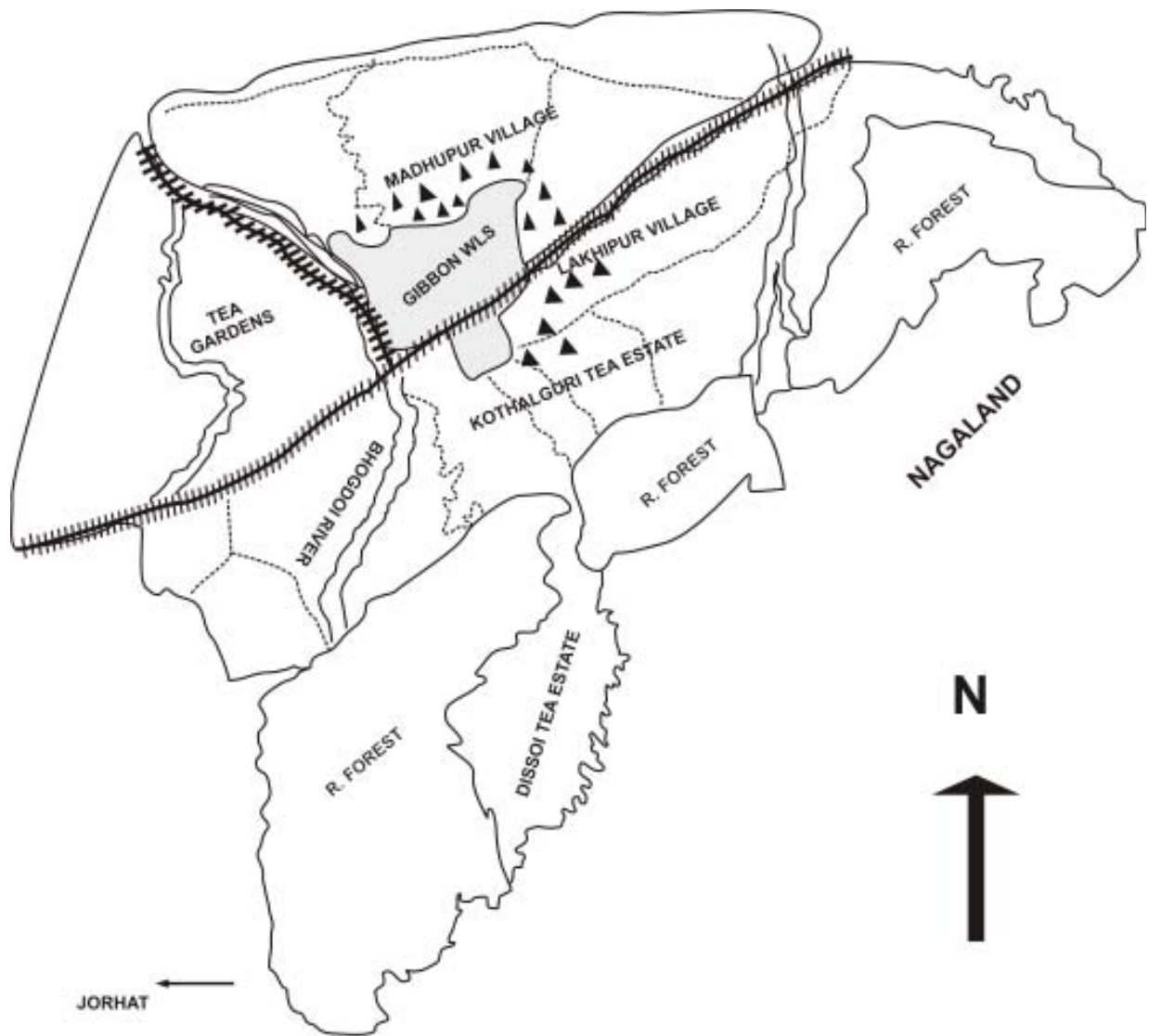
COME WITH US TO GIBBON WILDLIFE SANCTUARY / LAWACHARA NATIONAL PARK

Facts about Hoolock habitats:

Destination 1. Gibbon Wildlife Sanctuary, India

Gibbon Wildlife Sanctuary (WLS) which comes under Jorhat District within the state of Assam was constituted in 1997. In 1881 when this area was notified as Reserve forest it was known as “Hollongapar Reserve Forest”. Currently it has a total area of 2098.62 ha (20.98km²). The Sanctuary is surrounded by 11 tea gardens on almost all sides established during the last part of the 19th Century including 9 villages that were established during the 1960s. The Gibbon WLS is now an isolated forest patch but once it was contiguous with large forest tracts that extended into Nagaland state.

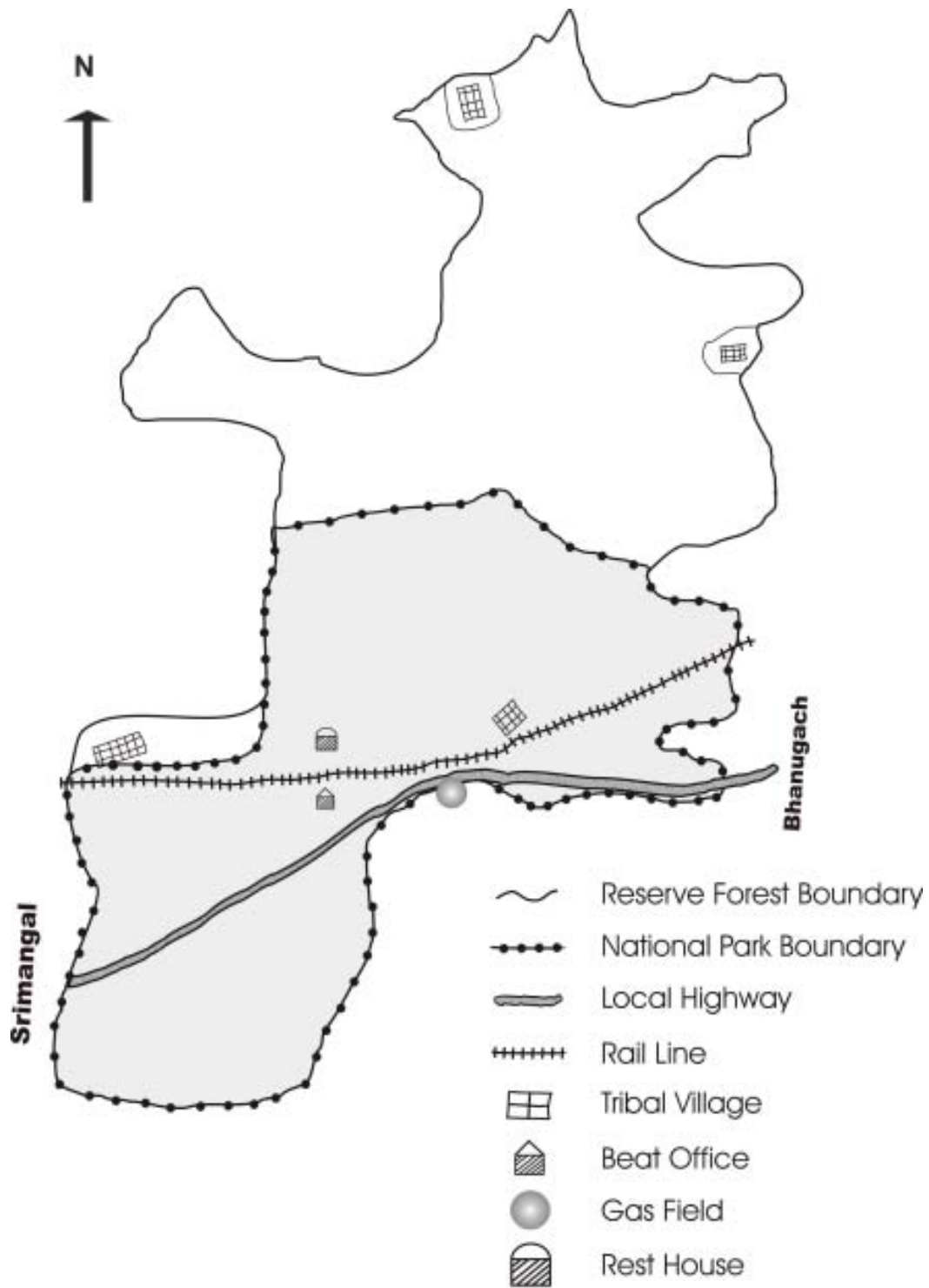
HELP(ING) HOOLOCK GIBBONS HANG ON



Landscape view of Gibbon Wildlife Sanctuary

Not to scale

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Landscape view of Lawachara National Park

Not to scale

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Destination 2. Lawachara National Park, Bangladesh

Lawachara is a National Park (NP) that covers an area of 1250 ha (12.5 km²) within the West Bhanugach Reserve Forest in the Moulvibazar Forest Range of the Sylhet Forest Division. It is located 7 km east of Srimangal *upazila*. The topography of the area varies from medium to steep hilly slopes. Many *chara* (water streams) pass through and around the numerous hillocks. There are four forest villages (*Khasia Punji*) of which two are in Lawachara NP. In Magurchara Punji there are 40 families comprised of 250 people and at Lawachara Punji there are 23 families comprised of about 150 people. Betel leaf cultivation is the main source of income of these villagers (Khasias, local tribes/indigenous people). Lawachara is rich in faunal diversity: among mammals 6 species of primates out of 10 found in Bangladesh are in this park. Orange-bellied squirrels, Himalayan squirrels, Large Indian civet, Barking deer, Leopard cat, Crab-eating mongoose also occur in this forest. There are about 50-60 Hoolock Gibbons in this national park.

Tell your audience that in India Hoolock Gibbons live in Gibbon Wildlife Sanctuary in Assam, India and in Bangladesh in Lawachara National Park, Sylhet. These two Protected Areas are well studied for the Hoolock Gibbons by scientists. These protected areas are rich in a variety of wildlife and Hoolock Gibbon food plants. Some of the important food plants for Hoolock Gibbons in Gibbon Wildlife Sanctuary are *Artocarpus chaplasha*, *Dysoxylum procerum*, *Ficus religiosa*, *Garcinia morella* and *Hoya parasitica*. There are about 28 different important food plants available in the Gibbon WLS.

Tell your audience that together you will model the work of a field biologist dedicated to saving Gibbon WLS / Lawachara NP.

Destination: Gibbon Wildlife Sanctuary / Lawachara National Park

The activities are divided into several phases:

- Examining the feeding ecology of Hoolock Gibbon population
- Estimating the number of Hoolock Gibbons in the protected area: Home range, tracking Hoolock Gibbons and social behaviour
- Captive Breeding: Citizens Discussion on a Contentious Issue

HELP(ING) HOOLOCK GIBBONS HANG ON

EXAMINING THE FEEDING ECOLOGY OF HOOLOCK GIBBONS

Determining the health of a population of frugivores such as the Hoolock Gibbons of Gibbon Wildlife Sanctuary, is impossible without also considering the health of the forests and its food plants. One of the major problems facing Hoolock Gibbons in many parts of their range is habitat loss or degradation of habitat due to human activities like logging, *jhumming*, charcoal production, human settlement, construction of roads, dams, power lines, unplanned tourism etc. By felling important food trees of Hoolock Gibbon, such as *Artocarpus* sp., *Michelia champaca* will lead to scarcity of food resources in the habitat. It is important for educators to make people in Hoolock range areas aware that protecting the food plant species is critical to Hoolock Gibbon survival.

Show your participants the list of the major six food trees of Hoolock Gibbon and make them identify the trees using the local names. Show them the illustrations of major food plants of Gibbon WLS / Lawachara NP. (*Artocarpus chaplasha* (Sam Kothal), *Dysoxylum* sp., (Bandardima) *Garcinia* sp., *Ficus* sp. (Dimoru), *Hoya* sp., *Dillenia* sp.). Some of the trees may be familiar to them. See how many illustrations your audience can identify. Refer to the Table for some preferred plant species of Hoolock Gibbon (page xx)

Scientific name

Artocarpus

Dysoxylum

Garcinia

Ficus

Mangifera

Gynocordia

Ask a volunteer to come to the front of the room and try to guess which four species are most important diet of the wild Hoolock Gibbons. Tell your audience how many are correct, but not which ones are correct. Then ask another volunteer to come forward and make any changes. Again, tell your audience how many are correct, but not which ones are correct. Repeat this process until the four correct species are identified.

(They are: *Artocarpus*, *Dysoxylum*, *Garcinia*, *Ficus*).

HELP(ING) HOOLOCK GIBBONS HANG ON



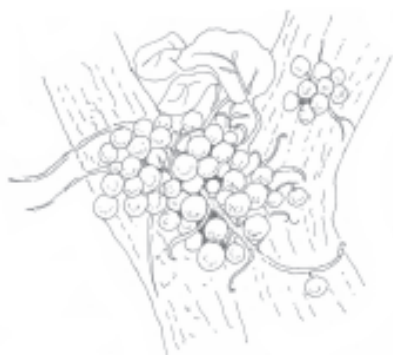
Aristolochia sp.



Syzigium sp.



Mangifera sp.



Ficus sp.



Gynocardia sp.

Dysoxylum sp.



Garcinia sp.

Artocarpus sp.



HELP(ING) HOOLOCK GIBBONS HANG ON

Tell your audience that the percentages of preferred food plants consumed by each of the Hoolock Gibbon are:

<i>Artocarpus</i> spp.	22.7%
<i>Dysoxylum</i> spp.	9.5%
<i>Garcinia</i> spp.	8.9%
<i>Ficus</i> spp.	12.5%
Other 21 trees	46.4%

(These figures are based on research study by D. Chakraborty and A.K. Das, (2005))

Tell your audience that since the declaration of the WLS in 1997 a total of 439.8 ha (4.39 km²) of forest have degraded out of 2098.62 ha (20.98 km²) area of Gibbon WLS. This means 20.95% of forest has degraded in the last 8 years. This has resulted in the change in the behaviour of the Hoolock Gibbon itself. Due to canopy gaps and other kinds of biotic disturbances the accessibility of gibbons to these food plants has decreased. Also this has lead to reduction in the home range area of Hoolock Gibbons.

Tell your audience that a recent survey shows that in 2002 there were 29 localities in Bangladesh that supported Hoolock Gibbons but by the end of 2005 eight localities have lost Hoolock Gibbons. Out of 109 localities in India Hoolock Gibbons have disappeared in 10 localities in India between 2002 and 2005. Of these more than half the Hoolock Gibbon populations had less than 15 individuals and that there are only ten groups with more than 50 individuals.



HELP(ING) HOOLOCK GIBBONS HANG ON

HOW MANY HOOLOCKS? STUDYING HOOLOCK GIBBONS IN THEIR HOME

Estimating the number of Hoolock Gibbons in the protected area: Home range, tracking Hoolock and social behaviour

A census is a count of the number of individuals of a given species found in a particular area at a given time. To determine the health of the protected areas' Hoolock population, it is important to determine how many Hoolock Gibbons are found in the park and which areas they frequent. This work is called "Censusing".

Because it may be virtually impossible to count the total number of animals in a population, conservation biologists have designed many different ways of estimating the size of populations. The particular estimation or sampling method a biologist chooses to use depends on the characteristics of the species involved and the habitat in which it lives. For instance, it is much easier to count the total number of turtles on a beach than it is to count the number of monkeys or tigers in a dense forest.

To give your participants a sense of how sampling works, walk them to a park or natural area near your school or your workshop venue and try to count the resident populations of a given species (in many places, squirrels or common bird species are good focal animals). Remember that if you want a realistic count of the number of individuals at your study site, you need to be as unobtrusive as possible. Below are some rules followed by many field biologists when they are censusing animals. They are good rules to follow when you are observing wildlife, whether you are taking a census or not. Ask your group to observe as many of these rules as possible during your walk in order to give them a sense of the practices followed by field biologists.

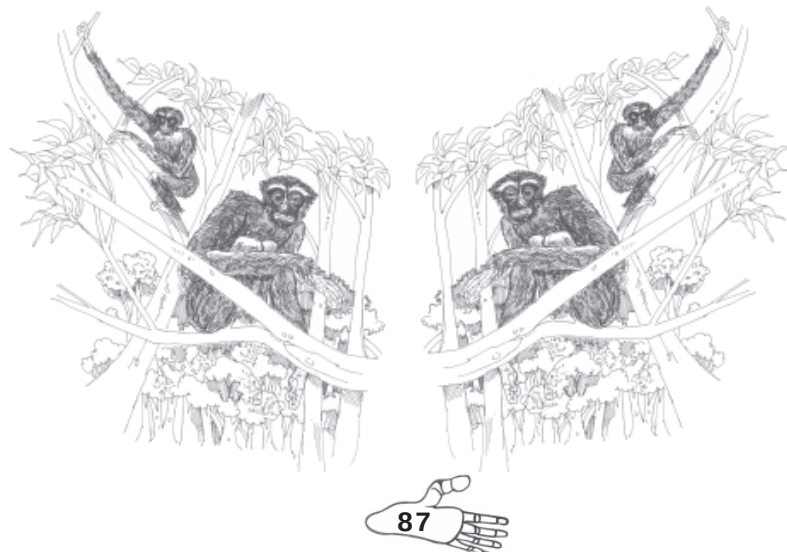


HELP(ING) HOOLOCK GIBBONS HANG ON

- Walk slowly and quietly. What you consider quiet may in fact be noisy to an animal. There should be no talking, spitting, or intentional breaking of branches.
- Stop and listen frequently.
- Keep track of wind direction. You want to be downwind from the animals you are looking for. A plastic bag or a leaf can tell you wind direction.
- No smoking. The smell tells animals of your presence.
- No bright clothing. Animals will see you first.
- No radios. Music will scare animals away.
- No guns for the purpose of hunting.

(Methods adapted from Wildlife Field Research and Conservation Training Manual. Alan Rabinowitz, WCS, 1993).

During your walk, try to count as many individuals of your focal species as possible. Remember, to have an accurate count you need to count each individual only once, so it is important to look for identifying marks on each animal you count. If your walk takes you to only one small part of a park or other natural area, you will need to extrapolate your count to the entire area. For example, if your walk takes you through an area you estimate to be 10% of a park's area and you see 15 squirrels you might estimate that there are 150 squirrels in the entire park. To increase the coverage of your walk, you may want to break your participants into groups of three and have them cover different areas.



HELP(ING) HOOLOCK GIBBONS HANG ON

Censusing Hoolock Gibbons

The presence of Hoolock Gibbons in a locality is determined by direct sighting or by hearing their calls, as well as through finding preserved skins in the tribal villages and interviews of local forest staff, villagers and hunters, using visual aids such as photos and drawings.

The most commonly used method to census primates is line transect method. For this study, existing forest trails, paths and roads are preferably walked by a team of three or four biologists. Each transect is preferably walked twice, once in the morning and then in the afternoon. Typical starting time for transect walk is between 5.30 a.m. and 6.30 a.m. in the morning and 2.30 p.m. in the afternoon. The transect is walked at a slow speed and as quietly as possible, stopping at every 100m to take the reading on visibility and spend 2-3 minutes to listen to any sound or movement or song.

Population survey of Hoolock Gibbons in each site is carried out using their songs. Sampling, in most of the study, is repeated according to the feasibility. The potential Hoolock Gibbon areas are also identified and confirmed on the map. Locations of the Hoolock groups or their potential areas are taken with the help of Global Positioning System (GPS) units.

Social structure:

Hoolock Gibbons live in small groups. Usually a group will consist of an adult pair (male and a female) with 0-4 young ones. Hoolock Gibbons are monogamous. Young gibbons leave their parents when they become adult.

Discussion questions:

Find out with your audience if one specific methodology can be applied to study different species of animals. Explain why it is essential to find a methodology suitable for a species of their interest. How tiger population is estimated? Does it differ from Hoolock Gibbon study methodology? If so why do they differ?





CAPTIVE BREEDING: CITIZENS DISCUSS A CONTENTIOUS ISSUE

Now that your participants have learned about the basic biology, needs and history of Hoolock Gibbons as well as the scientific work required of a conservation biologist studying them, it is important for them to consider other factors pertaining to Hoolock Gibbons. If possible, display a photograph of captive Hoolock Gibbons with a baby and share the following information with your participants.

Hoolock Gibbon Habitats

As mentioned earlier, Hoolock Gibbon localities are situated in Northeastern India and southeastern and Northeastern Bangladesh. We also know that there are two species of Hoolock Gibbons: Western Hoolock Gibbon *Hoolock hoolock* and the Eastern Hoolock Gibbon *Hoolock leuconedys*.

We also know that in the wild, there are about 3000 Western Hoolock Gibbons spread out in all seven states of Northeastern India and in Bangladesh in about 155 localities. And although this may seem a large number what is often overlooked by the layperson, is that these numbers are widely scattered with small numbers in isolated pockets. Groups separated by roads, cities, deforestation etc. This means a single Hoolock Gibbon would find it hard to find a mate.

In the wild, field biologists have been studying these shy animals for some years. They found that Hoolock Gibbons mate for life. They also learned that female Hoolock Gibbons give birth only once in 3 years (range 2-5 years). The baby Hoolock Gibbon takes at least 5-6 years to become independent. Till then the parents do not have any

HELP(ING) HOOLOCK GIBBONS HANG ON

more offspring. These aspects greatly affect the Hoolock gibbon's population growth and its survival as a species.

PHVA Report

There is an international organization called IUCN SSC Conservation Breeding Specialist Group (CBSG). This organization conducts meetings to which they invite scientists who have studied different kinds of wild animals. They also invite people who have related information, such as the behaviour, of people who interact with wild animals, etc. The scientists contribute data which they have collected in their studies. The group of scientists and others perform tasks using the data in different ways for different results. One type of meeting or “workshop” is a C.A.M.P. (Conservation and Management Assessment Plan) and another is called a P.H.V.A. (Population and Habitat Viability Assessment). The P.H.V.A. helps in understanding how a species is doing in the wild and its chances of survival. (Refer unit 5 for more details)

In 2005, Zoo Outreach Organisation conducted the first Western Hoolock Gibbon Population and Habitat Viability and Assessment (P.H.V.A.) workshop for South Asia. About 40 wildlife researchers and primate specialists were invited to put together all the knowledge they had on Hoolock Gibbons. To their alarm they found that more than half the Hoolock Gibbon groups had less than 15 individuals and that there were only ten groups with more than 50 individuals. They found the Hoolock Gibbon Endangered.

They learned that habitat loss was one of the main reasons for so few Hoolock Gibbons. In Bangladesh alone 8 populations have disappeared in just 3 years.

In captivity today, India has 17 Hoolock Gibbons in 9 zoos while Bangladesh has 2 zoos with 5 Hoolock Gibbons (See appendix for list of zoos holding Hoolock Gibbons). There are records of Hoolock Gibbons sent out of Asia to international zoos. However, there is a national studbook maintained by the Central Zoo Authority in India and soon to be a regional studbook maintained by the South Asian Zoo Association for Regional Cooperation (SAZARC).

HELP(ING) HOOLOCK GIBBONS HANG ON

Points to Ponder on breeding programmes for release

Breeding programmes (for release) are often thought to be a solution in helping threatened species to recover in the wild. But there are some ground realities that the decision makers have to consider before taking any action such as:

- The primary reason for that animal being threatened in the area
- The financial feasibility of the species conservation program
- Is there adequate and appropriate habitat available for the release of the animals if and when necessary
- Long term and short term objectives.
- The socio-political issues in the area of release/rehabilitation
- Research base available on the species concerned.
- Training and expertise in the care and management of the animal.
- Are there sufficient captive animals to start a programme?
- Will capture of wild animals harm the wild populations ability to survive?

To put it quite simply, releasing any animal into the wild is not a simple process. In every situation there are pros and cons that have to be considered in-depth before taking any action.



HELP(ING) HOOLOCK GIBBONS HANG ON

In wildlife terms there are 4 types of release for conservation: reintroduction, restocking, benign introduction and translocation.

Reintroduction is often confused with rehabilitation release. Here is the difference between the two:

Rehabilitation release is a process involving sick orphaned or injured animals picked up from the wild to nurse or raise them back to fitness in captive condition to be released in the wild with its welfare being the underlying factor.

Reintroduction, however, is a systematic attempt to re-establish or strengthen a population of animals that are seriously threatened with extinction, or are locally extinct.

Most animals that are in captivity have to learn how to live in the wild, find food, shelter and protect themselves. Thus, release programmes have to be planned carefully, ensuring that the animals have the necessary survival skills. It is also necessary to study the animals after the release to establish whether the animals are surviving and breeding, what effects the release is having on the ecosystem, and to learn how to improve the process. There is an international body set up to provide guidelines for reintroductions known as the Reintroduction Specialist Group (RSG).

ACTIVITY

Share the background information provided above with your audience. Use photographs as a visual aid. Break your audience into 6 groups and assign a role to each group.

Roles:

- ◆ **Wildlife Conservationists**
- ◆ **Hunters**
- ◆ **Government officials**
- ◆ **Zoo Personnel**
- ◆ **Public opinion (reporters)**
- ◆ **Animal Welfare NGO**

The government of officials group should ideally be an odd number of three or five individuals. The groups must try to imagine the interests and experiences of their assigned groups and how those would impact on the proposal being discussed. This role-playing demonstrates real-life situations that arise and govern decision making.

HELP(ING) HOOLOCK GIBBONS HANG ON

Once you have assigned your roles, introduce your participants to the following proposal.

PROPOSED:

To undertake a pioneering conservation breeding programme of Hoolock Gibbons. All zoo's holding captive hoolocks are to hand over the animals to a central team who will evaluate their health and fitness before scientifically pairing the animals. The centre will be located near prime Hoolock Gibbon habitat so that the offspring might be used to strengthen existing Hoolock Gibbon populations. Each participating zoo will be considered a partner in this prestigious project. The Hoolock Gibbon Conservation Programme will be fully funded by the Ministry of Environment through the Central Zoo Authority of India. The programme will receive funding and technical support for 6 years to ensure success considering the breeding biology of the animal.

Give each group the appropriate information (given in the following pages) to consider its deliberations about the proposal. Each group must only have the information relevant to them; they should not be able to see the other groups' instructions.

Allow the groups about 15-20 minutes to consider the information. Make sure that the participants understand that they have to debate their case to the government based on the given proposal and highlight the needs associated with their roles.

Once all the groups are ready, have each come up and present their case to the government officials. Explain to the groups that it is important for each group to be as persuasive as possible. Once all the presentations have been made the government officials will take a final decision as to whether the proposal is approved or modified or rejected.

After the activity hold a discussion among the participants without the role playing. Ask the following questions:

1. Was the government decision right or wrong?
2. Which group was most persuasive and why?
3. Was conservation for the Hoolock Gibbon at the forefront?

HELP(ING) HOOLOCK GIBBONS HANG ON

Government officials:

As government officials you will decide whether the proposal passes or fails. Each group will make a presentation to you. Listen carefully as a lot is at stake here.

You must consider several issues such as:

Is this in the best interest of the animals?

Are there differences between long term and short term interests?

Does the survival of the Hoolock Gibbons have any cultural value or economic value?

What are the needs of the people?

Where would the funds come from?

Who would look after this project?

After each group presents their case ask questions to find the weak or strong points of each argument.

Once all presentations are made you must hold a conference and give your final decision on the proposal.



Wildlife conservationists:

Your group is made up of conservation biologists and researchers. Your primary concern is protection of wildlife and natural habitats. With diminishing habitats could this breeding centre be good for the Hoolock Gibbons? Would this work if there are no habitats left to reintroduce Hoolocks? You feel an area, scientifically researched, should be notified as a Hoolock Gibbon reserve and built up over time to accommodate the hoolocks as well as a lifetime of protection for that area.



You also feel that it is not just a 6 year project, Hoolocks in the wild breed only once in 3 years (inter-birth interval could vary from 2-5 years). Hoolock Gibbons are also known to mate for life so correct pairing would be very important. You feel it would take several years to establish a good, healthy and viable breeding group. Do the zoos have any biological or medical history of the animals in their care? Do the zoos know the subtle aspects of attempting to pair the Hoolock Gibbon individuals from different zoos?

HELP(ING) HOOLOCK GIBBONS HANG ON

Hunters:

The members from your group make your living from the plants and animals of the forest. You feel that if zoos give up their animals then they may want more from the wild later. Maybe this proposal could be manipulated to your advantage! If Hoolocks are released into the wild there will be more animals for you to acquire to make more money. Maybe the government should allow you (for a price) to acquire some wild Hoolock Gibbons for this programme to bring in genetic diversity into the breeding programme. Hunting of wild animals is prohibited by law but if limited permission is given by the government you could capture more than is necessary, who would monitor or know the difference?



Public opinion:

Compiling interviews taken from the 'zoo going public' as a local newspaper you plan on running several reports on this matter. Several people question the need to spend huge money by the ministry on an animal... with illiteracy, poor health care, bad infrastructure, unplanned development, insurgency and a host of other problems on the rise, maybe the government should concentrate their energies and money on more important issues pertaining to the people. The public feel that the government is doing this just to channel more public funds and acquire large tracts of land at a low cost.



HELP(ING) HOOLOCK GIBBONS HANG ON

Zoo personnel

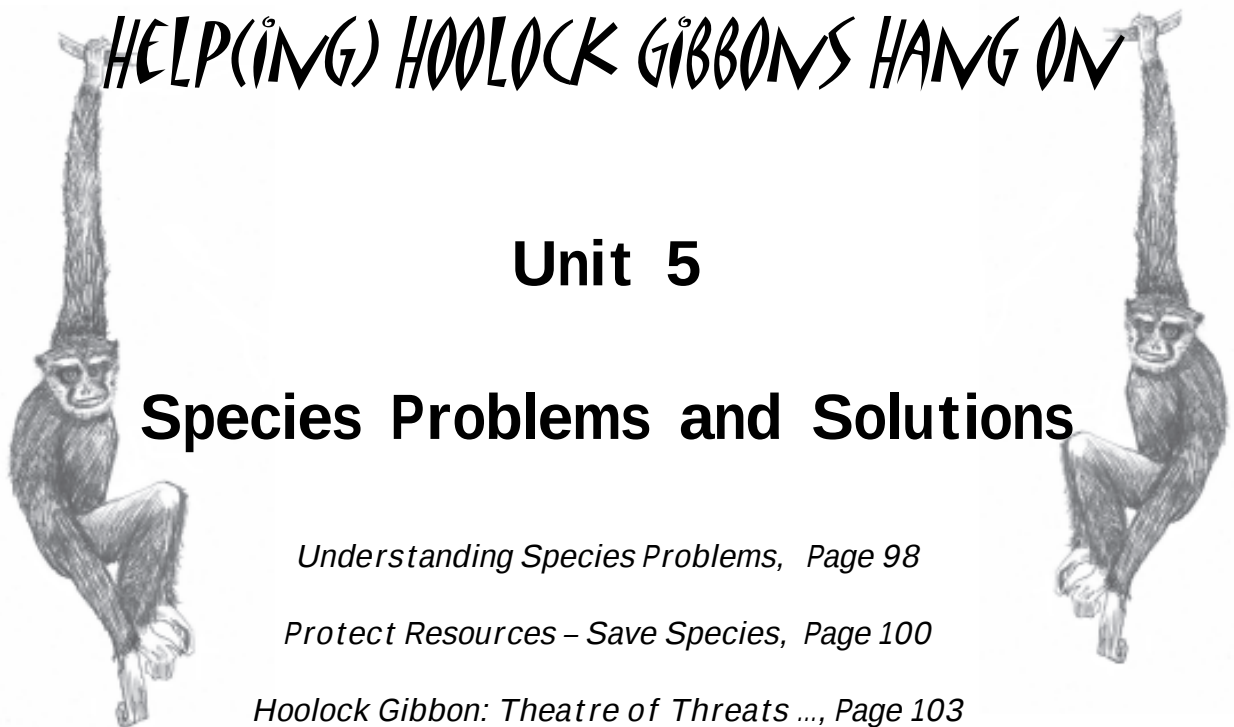
Being a part of this pioneering effort is prestigious indeed. But the so-called honour of being made a partner in the programme doesn't compare with giving up an animal that brings in maximum crowds into the zoo. The calls of the Hoolock Gibbons at your zoo keep visitors coming back to your zoo month after month. In fact you calculate that over one lakh collected of the entrance fee could be directly attributed to people coming to see the Hoolock Gibbons. Maybe the government should look at other animals that need to be donated to the zoo to fill in the huge gap that the loss of the Hoolock Gibbons will bring to the zoo. You feel the funds allotted to this 6 year programme could be better spent by giving it to the zoos that have Hoolock Gibbons to improve the enclosures as well as initiate outreach educational programmes to disseminate information to the public on the importance of saving the remaining wild populations!



Animal welfare NGO

This is a noble idea to give captive Hoolock Gibbons a chance to bond with other Hoolock Gibbons and their young be rehabilitated into the wild. But how good is this programme practically. What happens to the animals that do not bond? What will happen to the animals after 6 years? Will they be returned to the zoos? Will the animals in the captive breeding centre be in cramped cages? What about releasing the adult animals into the wild as well and giving them a chance at freedom.





HELP(ING) HOOLOCK GIBBONS HANG ON

Unit 5

Species Problems and Solutions

Understanding Species Problems, Page 98

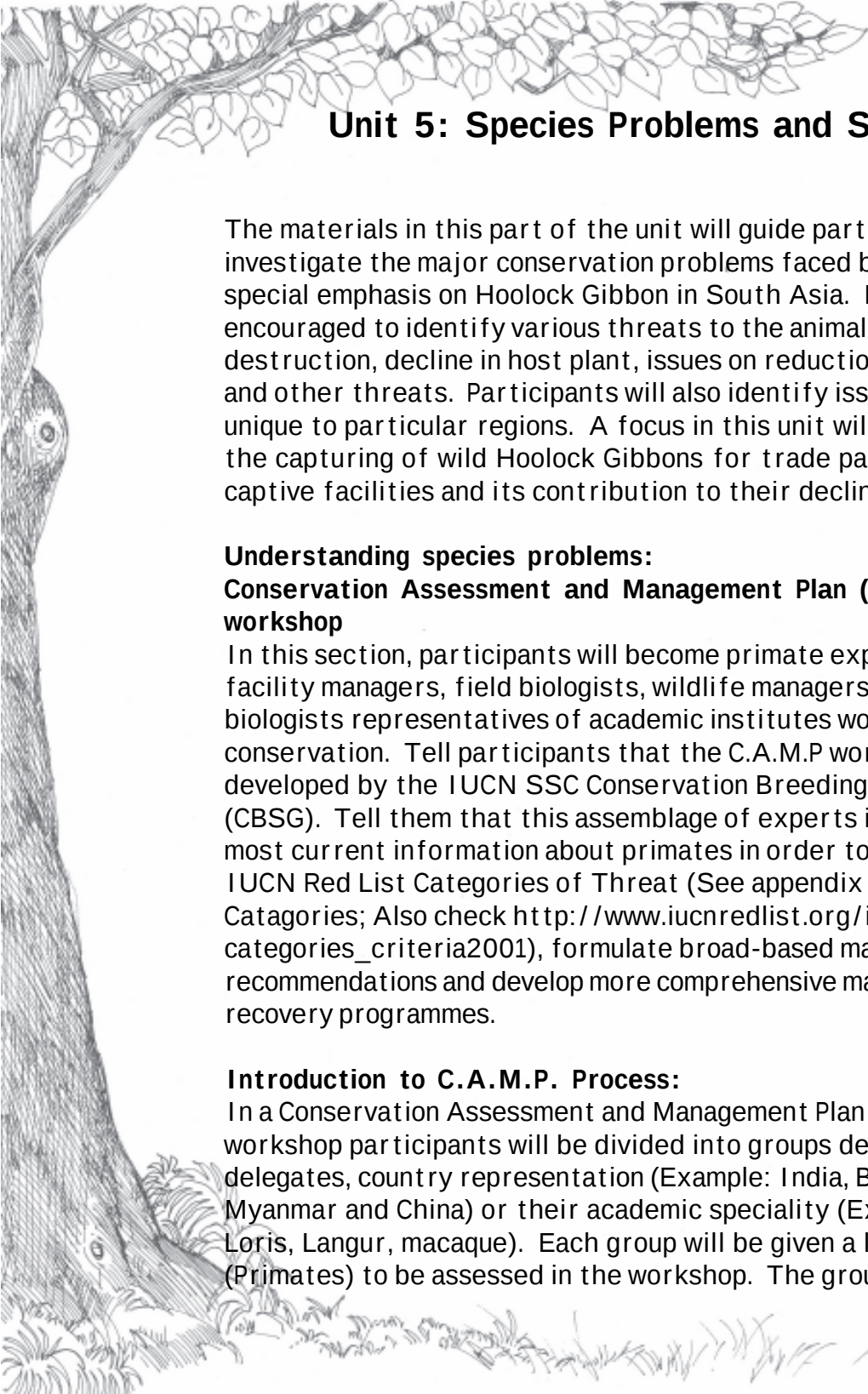
Protect Resources – Save Species, Page 100

Hoolock Gibbon: Theatre of Threats ..., Page 103

Understanding Chances of Survival of Hoolock Gibbon, Page 108

What to do? You CAN do. Page 111

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Unit 5: Species Problems and Solutions

The materials in this part of the unit will guide participants as they investigate the major conservation problems faced by primates with special emphasis on Hoolock Gibbon in South Asia. Participants will be encouraged to identify various threats to the animal, such as habitat destruction, decline in host plant, issues on reduction in population size and other threats. Participants will also identify issues that are unique to particular regions. A focus in this unit will be understanding the capturing of wild Hoolock Gibbons for trade particularly for captive facilities and its contribution to their decline.

Understanding species problems:

Conservation Assessment and Management Plan (C.A.M.P.) workshop

In this section, participants will become primate experts, captive facility managers, field biologists, wildlife managers, conservation biologists representatives of academic institutes working on primate conservation. Tell participants that the C.A.M.P workshop process was developed by the IUCN SSC Conservation Breeding Specialist Group (CBSG). Tell them that this assemblage of experts is to provide the most current information about primates in order to assign species to IUCN Red List Categories of Threat (See appendix for structure of Categories; Also check http://www.iucnredlist.org/info/categories_criteria2001), formulate broad-based management recommendations and develop more comprehensive management and recovery programmes.

Introduction to C.A.M.P. Process:

In a Conservation Assessment and Management Plan (C.A.M.P.) workshop participants will be divided into groups depending on the delegates, country representation (Example: India, Bangladesh, Myanmar and China) or their academic speciality (Example: Gibbon, Loris, Langur, macaque). Each group will be given a list of species (Primates) to be assessed in the workshop. The groups will receive a

HELP(ING) HOOLOCK GIBBONS HANG ON

Taxon Data Sheet (TDS) to fill in. In addition to their own knowledge each group will also be able to consult reliable references necessary to fill in the details in the TDS about the species. The TDS serves as a compendium of the data collected species by species pertinent to the condition of the populations and its habitats in the wild and in captivity. IUCN status is deduced using information in the TDS by applying IUCN criteria (norms and conditions). The Taxon Data Sheets also provide documentation of the reasoning behind recommendations, of the criteria used for deriving a status for a species, as well as details of other information pertinent to the species. After determining status and using other information from the TDS and participants experience, special issue workshop groups make recommendations. Then they put all the recommendations together. A report is compiled about what actions need to be taken to conserve Primates.

After explaining the C.A.M.P. process give them 10 minutes time for them to see the Taxon Data Sheet of Hoolock Gibbon (See appendix). Plan a discussion to make them understand how the status of a species is assessed.

For Discussion:

What information in the Taxon Data Sheet might tell us if the species is in trouble? (Look at the information after habitat status in the column to the left in the Taxon Data Sheet. If the habitat is decreasing in area and is also predicted to decrease more, this is a sign of trouble. The species living area is disappearing... that's trouble.

What does an increase in canopy gaps means? Is this good because it is an increase? (No! Canopy gaps mean that the brachiating Hoolock Gibbon cannot reach the next tree).

What about threats? Read the threats and discuss with your group if they think these threats are serious and why?

What about population trends? Do you think a population declining by more than 50% is a good thing? This is another topic you can discuss with your group.

Read the rationale for the status of Hoolock Gibbon after you have discussed all these things. Now you can begin to understand how conservation biologists figure out these things. Although it is a high level subject, common sense also goes a long way in understanding species extinction.

What do you do after a C.A.M.P. Workshop? Consult the recommendations and see what you can do as an individual a group.

HELP(ING) HOOLOCK GIBBONS HANG ON

PROTECT RESOURCES – SAVE SPECIES

One of the major reasons why Hoolock Gibbon populations have plummeted in the last 50 years has to do with the growth of the human population and competition for resources between humans and wildlife. The Resource Round-Up game is designed to dramatize the crucial link between human population and species decline and threat level.

Explain to your audience that they will play a game called Resource Round-Up. The objective of the game is to individuals representing Hoolock Gibbon and other wildlife species to avoid becoming threatened or extinct. Tell your audience that there are three major resources most wild animals need in their habitat in order to survive: food, water, and space. These are the major resources that need to be protected in order to protect wildlife. Depending on its ecology and desirability to humans, each species may also need other sorts of protection. For example, a species such as the Hoolock, hunted for food, needs protection from poaching.

Distribute a piece of blank paper to each member of your audience. In order to divide the audience into four equal-size groups, ask each member to count off one number in sequence: 1,2,3,4,1,2,3,4,1 and so on. Instruct the group that each person must remember the number s/he counted off. Tell the group that they will be designing placards for the different resources Hoolock need to have protected. Ask all the people who called out “1” to write the word “FOOD” on their sheet of paper. All the people who called out “2” should write “WATER;” all who called out “3” should write “SPACE” and all who called out “4” should write “GIBBON MEAT.” Provide some time for participants to illustrate their placards.

After everybody has finished making their placards, bring the four groups together and find an area of clear floor space. Collect the placards and place each other on the floor in a random way. Then divide your groups into five new teams equal in size. Explain that teams 1-4 represent the human population of Asia. Each team represents millions of people. Explain that Team 5 represents Hoolock Gibbons and their food plants. Assign members of Team 5 to the following groups: *Hoolock hoolock*, *Hoolock leuconedys*, Sambar, Wildboar, and *Python*. Give each person representing the animal a name tag designating the kind of species s/he is and ask them to wear it so the animals are clearly identified.



HELP(ING) HOOLOCK GIBBONS HANG ON

Draw the following chart on a chalkboard or a large piece of paper:

	Vulnerable	Critically Endangered	Extinct
<i>Hoolock hoolock</i> (Western Hoolock Gibbon)			
<i>Hoolock leuconedys</i> (Eastern Hoolock Gibbon)			
Sambar			
Wildboar			
<i>Python</i>			

Ask the people representing animals to come forward. Explain the rules of the game. Each animal must find and pick up one food placard, one water placard, and one space placard to successfully complete round one. In addition to the three resources, gibbons must also pick up one Gibbon meat placard. The animals will move from one resource to another. When they pick up a placard they have obtained the resource written on it. Each animal should remain standing in the place of the last resource it picks up. Animals should remain standing in the place of the last resource it picks up. Animals cannot share a placard. Explain to the participants that they may not always be able to find all three resources they need. If they cannot find all three, they will be given a mark on the chart to designate when they are vulnerable, another mark to designate when they are Critically Endangered, and another mark to designate when they are Extinct.

Round 1

Explain that you are starting the game in year 1930. Ask the members of Team 1 to step forward. Each of these individuals should find a resource placard, stand on it, and call out what the resource is.

Ask the group: Why are the people representing humans standing on the animals' resource cards? Help participants understand that humans compete with animals for all three natural resources. Humans may compete for food, water and space directly, or indirectly through destruction of habitat. Also explain that humans compete with Hoolock Gibbons for their meat. Explain that teams 2-4 will enter the game in the later rounds to represent human populations growth over time.

HELP(ING) HOOLOCK GIBBONS HANG ON

Continue the first round of play. Team 1 should occupy several resource placards. Have each animal find and pick up the three resources placards it needs to survive. Hoolock Gibbons will need four placards: the three resources and the one saying 'Hoolock Gibbon meat.' Remind the animals to freeze in place of the last resource they obtain. In this round, all of the individuals should have been able to find the resources they needed. Now have all the animals put their resource placards back on the floor in a random way.

Round 2

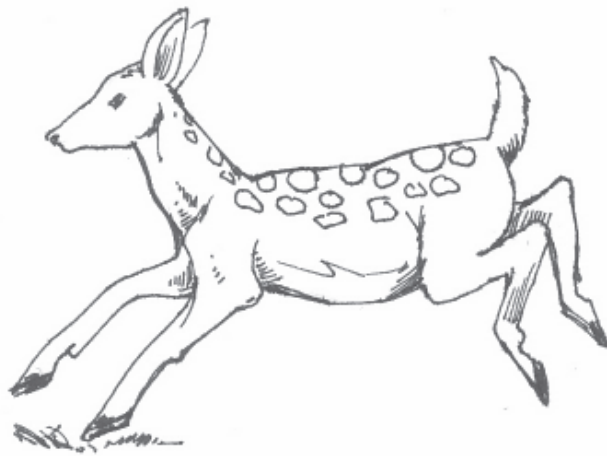
Tell the group that it is now 1960. Explain that the human population of Asia has grown by many millions of people. Send the members of Team 2 into the game to represent the growing population. Each individual should find a vacant placard, stand on it and call out the name of the resource. They have the animals repeat the procedure from Round 1, picking up the resources they need. Ask if every animal was able to obtain every resource it needed. If an animal was not able to obtain all three resources it becomes a threatened species. If this occurs, draw an "X" on the chalkboard in the box marked THREATENED next to the animal's name. Then have all the animals put the resource placards back on the floor.

Round 3

Now you are ready for round 3. Explain to your audience that it is now 1990. Send in Team 3 to represent greater population growth. Once all individuals in Team 3 have occupied placards, send in the animals again to find their resource cards. In this round, more animals may become threatened, and some that were threatened may become endangered, if they fail to collect all their necessary resources. Again, place "X" s in the appropriate boxes on the chart. Have the animals return their resources to the floor.

Round 4

Explain to your audience that it is now the year 2020. Send in Team 4 to represent another burst of population growth. Then have the animals again try to find and pick up their resources. On the chart, mark another "X" in



HELP(ING) HOOLOCK GIBBONS HANG ON

the boxes for the animals that did not obtain all necessary resources. If an animal has "X" in all three boxes, it becomes extinct.

Conclusion

Direct participants' attention to the chart, noting the status of each animal. Ask the group in what ways they think the game was realistic or unrealistic. Ask older participants whether they can remember animals or natural places near their homes that they saw as children and do not see today. Discuss with the group whether human population growth and/or direct competition with humans were reasons for the disappearances mentioned. Ask participants to speculate about the major effects humans have on gibbons. Make sure the following are mentioned: habitat destruction, poaching of Hoolock Gibbons for its meat; decrease in the food plants and host trees of gibbons due to destruction of habitat. Ask the group what impact they think it would have on gibbons in the Resource Round-Up game if people had been using substitute meat instead of picking up the cards labeled "Hoolock Gibbon meat".



SPECIES SOLUTIONS

Hoolock Gibbon: Theatre of Threats ...

Ask your audience to once again gather in the two species groups. Tell the groups that their goal is to read the fact sheet (Recommendations) and use it to determine the two most important threats to the survival of the group's assigned species. After their group has decided upon the threats to its subspecies, its assignment is to create a short play, or mini-drama, 5-10 minutes in length, designated to communicate one of the two major threats to others. Instruct the groups to create mini-dramas that have no speaking roles, although they may include animal sounds. As the dramas are presented in pantomime, the audience will try to figure out which threat to Hoolock Gibbons is being dramatised.

Give the groups ample time to create their mini dramas. You may wish to provide some craft materials so that the groups can make simple props. Ask each group in turn to present its mini-drama to the assembled audience. After each performance, pool the audience to see if it can figure out which threat to Hoolock Gibbon was being portrayed. After the correct threat has been guessed, ask the performing group to state which other threat is the major danger facing its species. Keep a list of how many times each threat is mentioned.

HELP(ING) HOOLOCK GIBBONS HANG ON

UNDERSTANDING CHANCES OF SURVIVAL OF HOOLOCK GIBBON Population Habitat and Viability Assessment (P.H.V.A.)

After the performances, have each of the regional groups gather again. In this section, participants will become delegates at the Population Habitat and Viability Assessment (PHVA) workshop. Tell them that the groups are formed based on their expertise in field and thus the first group will be analyzing the **Habitat and distribution of Hoolock Gibbons**; another group on **Political and Public Awareness**; third group on **Captive management** and fourth group on **Wild population management**. There is one more group who will be doing simulation modeling using a computer programme called VORTEX developed by CBSG. This group works towards identifying the primary drivers of Hoolock Goolock population growth, the probability of the species' survival etc.

Based on their discussion the following list of recommendations has been identified. Give each group the following list or write it in posters in advance and place it in a place where it is easily examined by the entire group.

PHVA Group recommendations: (Hoolock Gibbon Conservation strategies):

Habitat and distribution of Hoolock Gibbons: This group worked on the distribution details of Hoolock Gibbons in India and Bangladesh and the quality of the habitat. The priority recommendations are:

- To earn firm commitment from politicians and policy makers for wildlife and habitat protection.
- To assess and evaluate present status and distribution of Hoolock Gibbon and its habitats.
- To generate alternative livelihood to check illegal activities in and around Hoolock Gibbon habitats.
- To minimize human and other biotic pressure on Hoolock Gibbon habitats.
- To create public awareness among primary stakeholders.
- To create a digital data base for Hoolock Gibbon population and habitat.
- To prepare a detailed memorandum for the conservation of Hoolock Gibbons and submit the same to the state and central government.
- To conduct surveys in unexplored habitat of Hoolock Gibbons in northeastern States and reevaluate the current status of previously surveyed areas.
- To build up pressure on the government and politicians through involvement of celebrities as ambassadors of Hoolock Gibbon conservation in the wild.
- To conduct socio-economic survey among the fringe area people
- To promote sustainable ecotourism and eco development activities.

HELP(ING) HOOLOCK GIBBONS HANG ON

Political and Public Awareness: This group should work towards identifying problems and issues in creating awareness about the wildlife among public and policy makers. The priority recommendations are:

- To improve the economic as well as educational status of the people and alleviate poverty.
- To strengthen education system and teaching capacity there by including conservation topics in formal and in informal education.
- To create an attitudinal change towards conservation among the politicians and general public.
- To network all specialists, policymakers and law enforcement agencies and disseminate the information.
- To made species and habitat information available to whoever needs it.
- To strengthen conservation through wildlife laws.
- To unify all education systems under one.
- To refurbish present educational system by linking the conservation education issues with school curriculum.

Captive management: This group prioritizes husbandry, Conservation, Research, Animal welfare and education as crucial issues of captive management of Hoolock Gibbons. The priority recommendations are:

- To define the conservation purpose of Hoolock Gibbon in zoos to education, research and breeding in captivity for exchange with other South Asian country zoos.
- To improve the overall scientific management of Hoolock Gibbon in captivity.
- To request government to make appropriate changes in the zoo administration to ensure continuity of zoo staff who have acquired training, experience, expertise and interest in the care and management of Hoolock Gibbon.
- To assess all existing Hoolock Gibbon enclosures and where they are inadequate, both from a welfare, husbandry and an education point of view, remodel/reconstruct, and enrich according to an appropriate design for Hoolock Gibbon. Create model designs for different types of designs (open moat, cage, etc.) for distribution to facilities holding Hoolock Gibbons.
- To initiate a comprehensive public education programme for Hoolock Gibbons.



HELP(ING) HOOLOCK GIBBONS HANG ON

Wild population management: This group identifies problems related to wild populations of the Hoolock Gibbon. The priority recommendations are:

- To arrest habitat loss
- To receive legislative support for preventing illegal activities for conservation of Hoolock Gibbon
- To improve the livelihoods of people living in and around Hoolock Gibbon habitat
- To have proper administrative set up to support conservation programmes and to facilitate periodic population estimation of Hoolock Gibbon
- To earn political will in favour of conservation

Activity:

Tell the groups that their job is to consider which of the given actions are most important to conservation of their assigned species. Each group has 100 points and it must assign its points between the given actions, to whatever extent it sees fit. Depending on time and the level of your audience, you may wish to have them assign points only to the major actions, or divide points among all of the secondary actions listed under the five major groups. It is important to explain that one group may decide that all five actions are important and therefore to assign an equal number of points to each. Alternatively, a group may decide that three actions are so important that sixty of the 100 points should be divided among those three. Stress that the goal is to consider the actions in accord with the information presented on the Hoolock Gibbon fact sheets and to make well-reasoned decisions about priorities. These sorts of model decisions are made in real conservation in which resources such as people and money are limited.



HELP(ING) HOOLOCK GIBBONS HANG ON

Develop a Global Hoolock Conservation Strategy that is a compendium of the groups' choices about what efforts need to be made around the world in terms of basic Hoolock Gibbon research, law enforcement, habitat protection, and education. Have each group make a presentation in which it explains how its points were allocated. Keep a class tally as the groups make their presentations. After the last presentation, assess the number of points received by each action. Ask the group to assess the point totals and discuss whether they feel those totals reflect the true priorities in gibbon conservation. Make sure to point out that a conservation action may be critically important in one region even if it is less important in others. Thus, actions that received fewer total points are not necessarily less important everywhere Hoolock Gibbons live. Ask if the groups would like to make any changes on the ranking based on these considerations, if any actions did not receive points, ask whether they should be dropped from the strategy.

On a poster-sized piece of paper, list the actions that the group has decided are most essential. This list represents your audience's PHVA recommendations and solutions to save Hoolock Gibbons.

Can they contribute time, creativity, education, money, letters to politicians, etc.? The goal of this activity and the related discussion is for people to emerge feeling that they have the power to act and to make a contribution to Hoolock Gibbon conservation, whatever their skills and resources may be.



HELP(ING) HOOLOCK GIBBONS HANG ON

WHAT TO DO? YOU CAN DO.

Once people start appreciating the critical role of Hoolock Gibbons play in ecosystems, as well as their attractiveness and charming nature, their next question should be, “How can I (we) make a difference?” It is easy to become overwhelmed by the magnitude of the problems Hoolock Gibbons face and people may feel helpless in the face of the problems. They may ask, “I’m only one person (or, we’re only a small group), what can I / we do?” It is important for the group leader to be able to cite examples of situations in which one person, or a small group of people, have made a difference to wildlife survival: whether the survival of a single animal, a small population, a landscape, a lake or river, an ecosystem or an entire species. The scale is not critical; the successful application of conservation efforts is what counts.

What to do?

Instructions for group leaders

1. Ask people: What can we do to save Hoolock Gibbons and the places where they live?
2. Post the list of actions for your audience to read, or read them aloud. The list supplied below is comprehensive and you will need to edit it in order to eliminate those that are not relevant to the particular place and audience with whom you are working. (Alternatively, as a learning exercise, you may ask the group to help you decide which actions are, and are not, relevant to your situations.)
3. Tell your audience that you would like every person to pick at least one, preferably three, actions to take on behalf of Hoolock Gibbons. The actions(s) can be pursued by individuals, small groups or the entire audience. But make sure to provide the group(s) with whatever materials are needed to get them started.
4. Give every participant a pledge card on which s/he will make a pledge to take action on behalf of Hoolock Gibbons. Have the participants write their chosen actions on the card. You may wish to post the pledge cards next to the PHVA poster produced earlier in this unit 5.
5. After a period of several weeks or a month, hold a reunion and ask people to prepare brief presentations to inform others about the action(s) they have taken.

HELP(ING) HOOLOCK GIBBONS HANG ON

The actions may be presented through posters, drawings, oral presentations, booklets, drama or song. Ask participants to evaluate their efforts and encourage them to pursue them or choose others.

Things You Can Do To Help Hoolock Gibbon

- Educate yourself about the benefits of conservation and the important ecological role of Hoolock Gibbons. Share the information with your friends, family and local community.
- Start a Hoolock Gibbon club in your school or community to hold performances that teach people about Hoolock Gibbon conservation.
- Write and perform a play or a song encouraging people to save Hoolock Gibbons.
- Create a sign or poster for your school, community center, protected area or local zoo explaining why Hoolock Gibbon conservation is beneficial to your community.
- Learn the names of local animals or plants and create signs or booklets to teach others.
- Post signs stating local wildlife laws. Make sure the signs explain why the laws are beneficial to people as well as wildlife.
- Write a letter to local or national government officials telling them why saving Hoolock Gibbons is important to you.
- Write a letter or article for a local newspaper telling why saving Hoolock Gibbons is important to your community.

HELP(ING) HOOLOCK GIBBONS HANG ON

- Invite a local scientist, reserve manager, or other person who cares about Hoolock Gibbons to give a talk in your community. Publicise the talk to encourage as many people to come as possible.
- Do not hunt Hoolock Gibbons or cut their host or food trees
- Only use forest products that grow back every year, such as fruits and nuts, to reduce your impact on the forest.
- Do not catch Hoolock Gibbons to keep them as pets.
- If you come across any diseased or dead Hoolock Gibbon, report it to the forest officials.
- Become a member of an organization dedicated to saving Hoolock Gibbons and their habitats.





HELP(ING) HOOLOCK GIBBONS HANG ON PLEDGE CARD

I, _____ PLEDGE TO HELP SAVE HOOLOCK
GIBBONS BY TAKING THE FOLLOWING ACTIONS:

1. _____

2. _____

Signed, this _____ day of the month of _____ in
the year _____

Your name: _____

Witness: _____

HELP(ING) HOOLOCK GIBBONS HANG ON

CERTIFICATE

This is to certify that

has acquired a greater knowledge and appreciation of Hoolock Gibbons by completing the

HELP(ING) HOOLOCK GIBBONS HANG ON

TRAINING WORKSHOP

*Which is dedicated to Conservation, Education and Research. This graduate is now
qualified to teach others how to participate in Hoolock Gibbon Conservation*

Course Coordinator

Date

Taxon Data Sheet from: Status of South Asian Primates C.A. M.P. Wokshop Report, 2003

***Hoolock hoolock* (Harlan, 1834)**

ENDANGERED in South Asia

<u>Synonyms</u>	<i>Simia golock</i> (Bechstein, 1795) <i>Hylobates fuscus</i> (Wilson Lewis, 1834) <i>Simia hoolock</i> (Harlan, 1834) <i>Hylobates choromandus</i> (Ogilby, 1837) <i>Hylobates scyritus</i> (Ogilby, 1840) <i>Hylobates hoolock</i> (Blanford, 1881-1891) <i>Hylobates hoolock hoolock</i> (Groves, 1967)
<u>Family</u>	Hylobatidae
<u>Level of assessment</u>	Subspecies
<u>Common names</u>	Assamese: <i>Holou bandar</i> ; Bengali: <i>Ulluk</i> ; Bilaspuri: <i>Bonmanush</i> ; Bodo: <i>Hulu makhra</i> ; Garo: <i>Heru, Huru</i> ; Hindi: <i>Uluk</i> ; Karbi: <i>Jambli, Kinghoiduk</i> ; Khasi: <i>Hulu, Hulaing</i> ; Manipuri: <i>Yommu</i> ; Mizo: <i>Hahuk</i> ; Nepali: <i>Bon Manchhe</i> ; Rai: <i>Sokpha</i> ; Rankhol: <i>Saha</i> ; Riang: <i>Hulao</i> ; Rongmi: <i>Paang</i> ; Rukni: <i>Hoolau</i> ; English: Western Hoolock, Hoolock Gibbon
<u>Habit</u>	Terrestrial, arboreal, brachiator, frugivorous, diurnal, monogamous, territorial
<u>Habitat</u>	Tropical semi-evergreen forest, tropical moist deciduous forest, subtropical broad-leaved hill forest, mixed-evergreen forest
<u>Niche</u>	Middle, upper/ top canopy dweller.
<u>Elevation</u>	10-1,400m.
Distribution	
<u>Global</u>	Bangladesh, India, Myanmar
<u>South Asia</u>	Bangladesh, India
<u>Extent of Occurrence</u>	>20,000 km ²
<u>Area of Occupancy</u>	Approximately 740 km ² [Bangladesh = 134 km ² ; India = 605 km ²]
<u>Locations/subpopulations</u>	126 / 97. Fragmented. Continuous decline in locations or subpopulations observed (50% in 8 years).
<u>Habitat status</u>	Decrease in area by >30% in the last 10 years and is predicted to decrease by >30% in the next 10 years due to habitat loss and encroachment. There is decrease in quality of habitat due to loss of fruiting trees, sleeping trees and an increase in canopy gaps.
Threats	Selective logging, firewood and timber collection, jhumming, charcoal production, human settlement, roads, dams, powerlines, fragmentation, soil loss/erosion, deliberate fires, hunting for food, sport, traditional medicine and cultural use, trade, accidental mortality by trapping, unplanned tourism, habitat loss, poor reproduction.

<u>Trade</u>	Local, commercial and domestic trade for blood, bones, fur, meat and phalanges for food and medicine. Live animals are in trade for zoos and as pets.	
Population		
<u>Generation time</u>	17 years	
<u>Total population</u>	<750 [Bangladesh = <140; India = <610]	
<u>Mature individuals</u>	<450 [Bangladesh = <80; India = <370]	
<u>Population trend</u>	Declined by >50% in the last 50 years (3 generations) and is predicted to decline by >50% in the next 50 years.	
Data Source	Census or monitoring, field study, informal sightings, indirect information, museum records, literature, hearsay/belief; observed; 95% confidence	
Status		
<u>SAP CAMP (Ver. 3.1)</u>	ENDANGERED in South Asia	A2abcd+3bcd; C1+2a(i)
<u>Rationale</u>	The Hoolock Gibbon is found in around 126 locations and 97 subpopulations in India and Bangladesh, most of which is threatened due to human interference (see under threats). Habitat fragmentation over the years has depleted the area available for this habitat-specific taxon and restricted it to several small pockets that are non-viable. Hunting along with habitat degradation has been observed to reduce the population of Hoolock Gibbon in South Asia by more than 50% in the last 50 years (3 generations) due to continuing decline in extent of occurrence, area of occupancy and quality of habitat along with exploitation of the taxon in the wild. The rate of decline is also predicted to continue at the same level over the next 50 years (3 generations) since more habitat destruction is predicted for human settlements, increasing population, refugee problems, encroachments and hunting. The number of mature individuals is around 440 in South Asia, with no subpopulations having more than 250 mature individuals and a continuing decline of over 20% over 2 generations. The South Asian population is bigger than the few individuals found in Myanmar, hence the status is retained as Endangered.	
<u>2001 Red List (Ver. 2.3)</u>	Endangered (globally)	A1cd
National Status	Bangladesh: Critically Endangered C1+2a(i) The population within Bangladesh is severely fragmented and there are no migrations between the neighbouring populations. Since the threats to the taxon are high, the restricted and small population is under severe threat. The category of Critically Endangered is therefore retained for the population within the country. India: Endangered A2abcd+3bcd; C1+2a(i) The Indian population of this taxon, which is fragmented from the Bangladesh or Myanmar populations is further fragmented into many non-viable remnants, which due to threats to habitat, are highly threatened. Hence the category of Endangered is retained for this taxon in India.	
<u>Uncertainty</u>	The assessment is based on full range of plausible values, evidentiary and with full consensus of all participants of the working group.	
Wildlife Legislation	<u>Bangladesh:</u> Schedule III, Bangladesh Wildlife (Preservation) (Amendment) Act, 1974. <u>India:</u> Schedule I, Part I, Indian Wildlife (Protection) Act, 1972 amended up to 2002	
<u>CITES</u>	Appendix II	

Presence in Protected Areas**Bangladesh***Chittagong*: Chunarati WLS*Sylhet*: Lawachara WLS**India***Arunachal Pradesh*: Kamlang WLS, Mehao WLS, Namdapha NP*Assam*: Bherjan WLS, Borajan WLS, Dibru-Saikhowa NP, Garampani WLS, Gibbon WLS, Kaziranga NP*Meghalaya*: Balpakram NP, Nokrek NP, Nongkhylem WLS, Siju WLS*Mizoram*: Dampa WLS, Khawnglung WLS, Murlen NP, Nengpui WLS, Phawngpui WLS*Nagaland* : Intanki NP*Tripura*: Gumti WLS, Sepahijala WLS, Trishna WLS**Recommendations****Research**

Genetic research, life history, survey studies, ecological studies

Management

Habitat management, wild population management, public education, limiting factor management, participatory management plan, PHVA

Captive stocks

5 zoos in India (3.5.0.8) and 3 zoos in Bangladesh (3.3.0.6). A coordinated Species Management Program is recommended for South Asia.

Comments

The Hoolock population in South Asia is extremely fragmented throughout the range. An effective management plan for conservation is needed for this species. Some areas with good population should be declared as Gibbon Sanctuary. An extensive survey for gibbons in Arunachal Pradesh is needed especially in high altitudes. Population in Bangladesh is declining in all areas except in West Bhanugach Forest Reserve, which supports 10 groups of gibbons. The population has increased in this area during the last 10 years and this is the only habitat in the country supporting the largest gibbon population (M.M. Feeroz, BIS)

Sources

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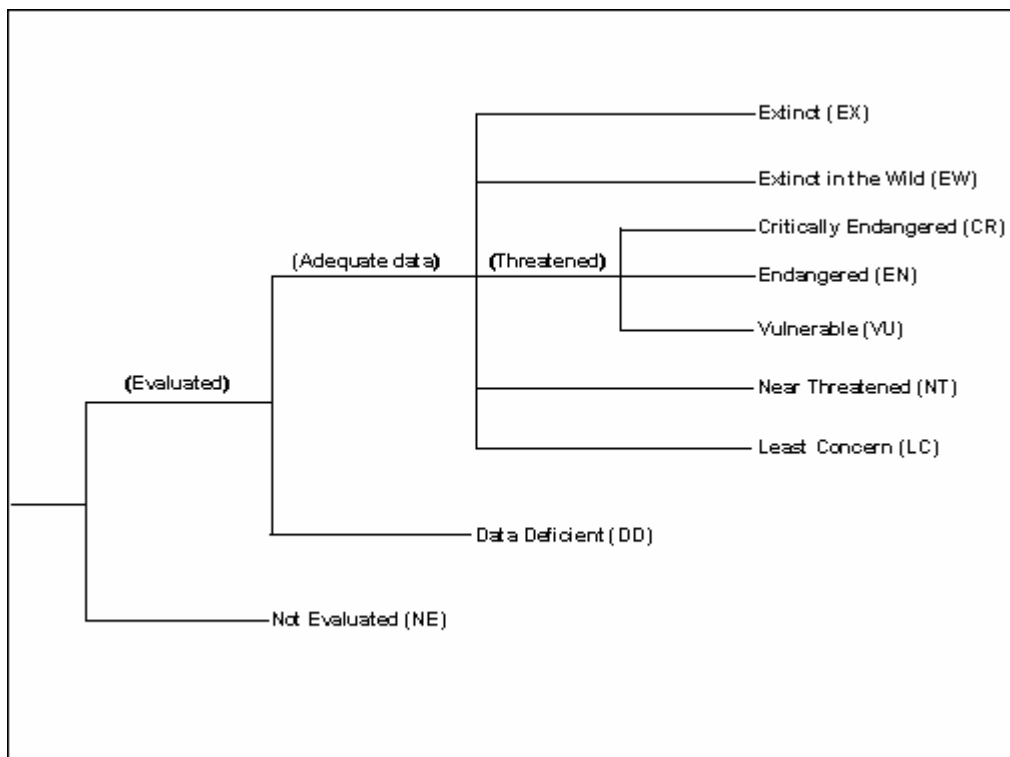
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Appendix: Structure of IUCN Red List categories



Source: http://www.iucnredlist.org/info/categories_criteria2001

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